

# SECTION **HAC**

## HEATER & AIR CONDITIONING CONTROL SYSTEM

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## PRECAUTION

### PRECAUTIONS

#### Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

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The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

#### **WARNING:**

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

#### PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

#### **WARNING:**

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

#### Precaution for Work

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- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
  - Water soluble dirt:
    - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
    - Then rub with a soft, dry cloth.
  - Oily dirt:
    - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
    - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
    - Then rub with a soft, dry cloth.
  - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
  - For genuine leather seats, use a genuine leather seat cleaner.

# PREPARATION

< PREPARATION >

[AUTOMATIC AIR CONDITIONING]

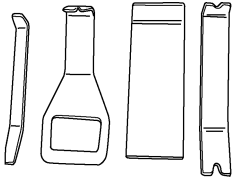
## PREPARATION

### PREPARATION

#### Special Service Tool


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The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
<p>— (J-46534) Trim Tool Set</p>  <p>AWJIA0483ZZ</p>	Removing trim components

#### Commercial Service Tool

INFOID:0000000011276564

(TechMate No.) Tool name	Description
<p>( — ) Power tool</p>  <p>PIIB1407E</p>	Loosening nuts, screws and bolts

# COMPONENT PARTS

< SYSTEM DESCRIPTION >

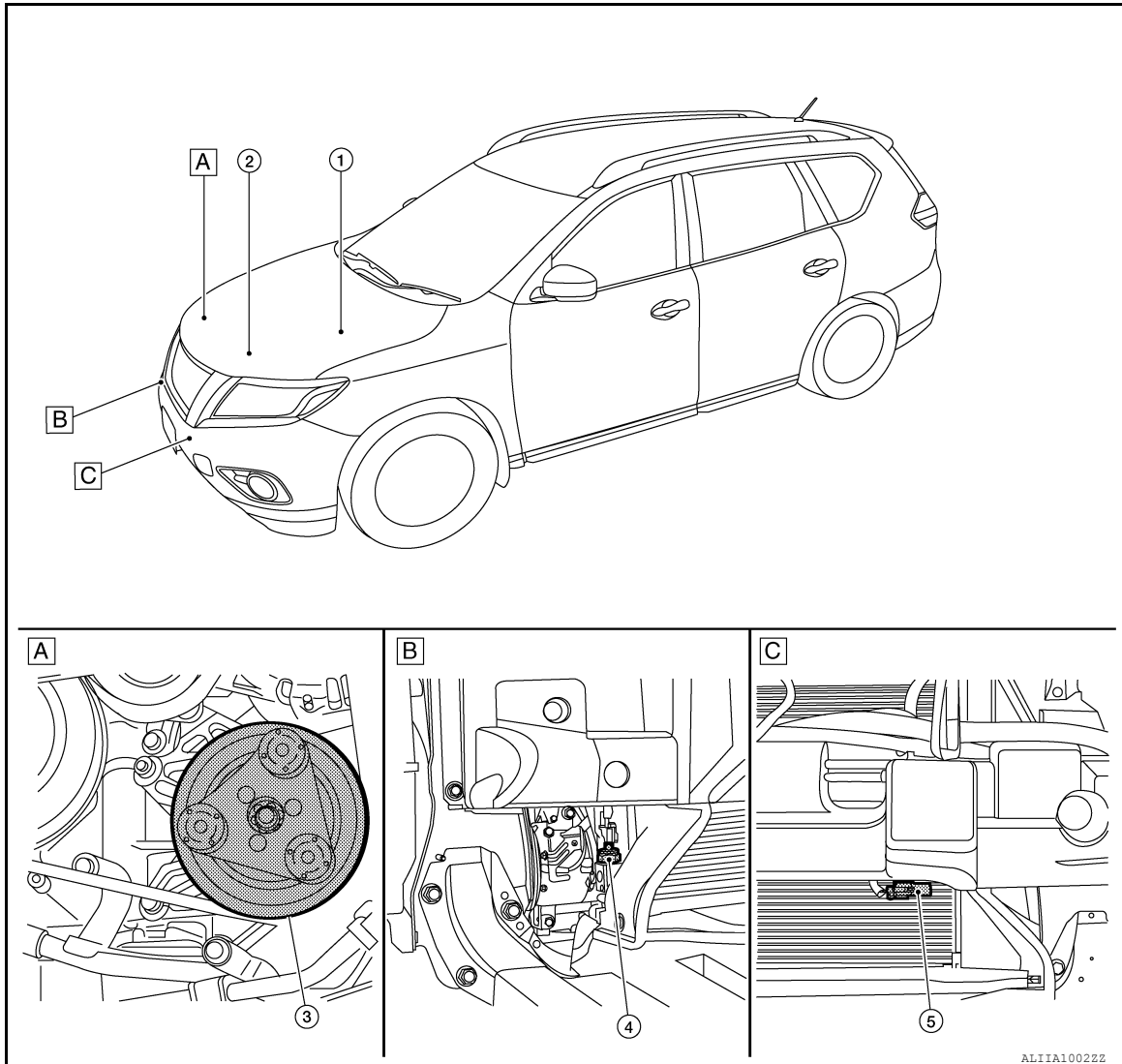
[AUTOMATIC AIR CONDITIONING]

## SYSTEM DESCRIPTION

### COMPONENT PARTS

#### Component Part Location

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A. RH side of engine compartment

B. RH front of vehicle (view with front bumper fascia removed)

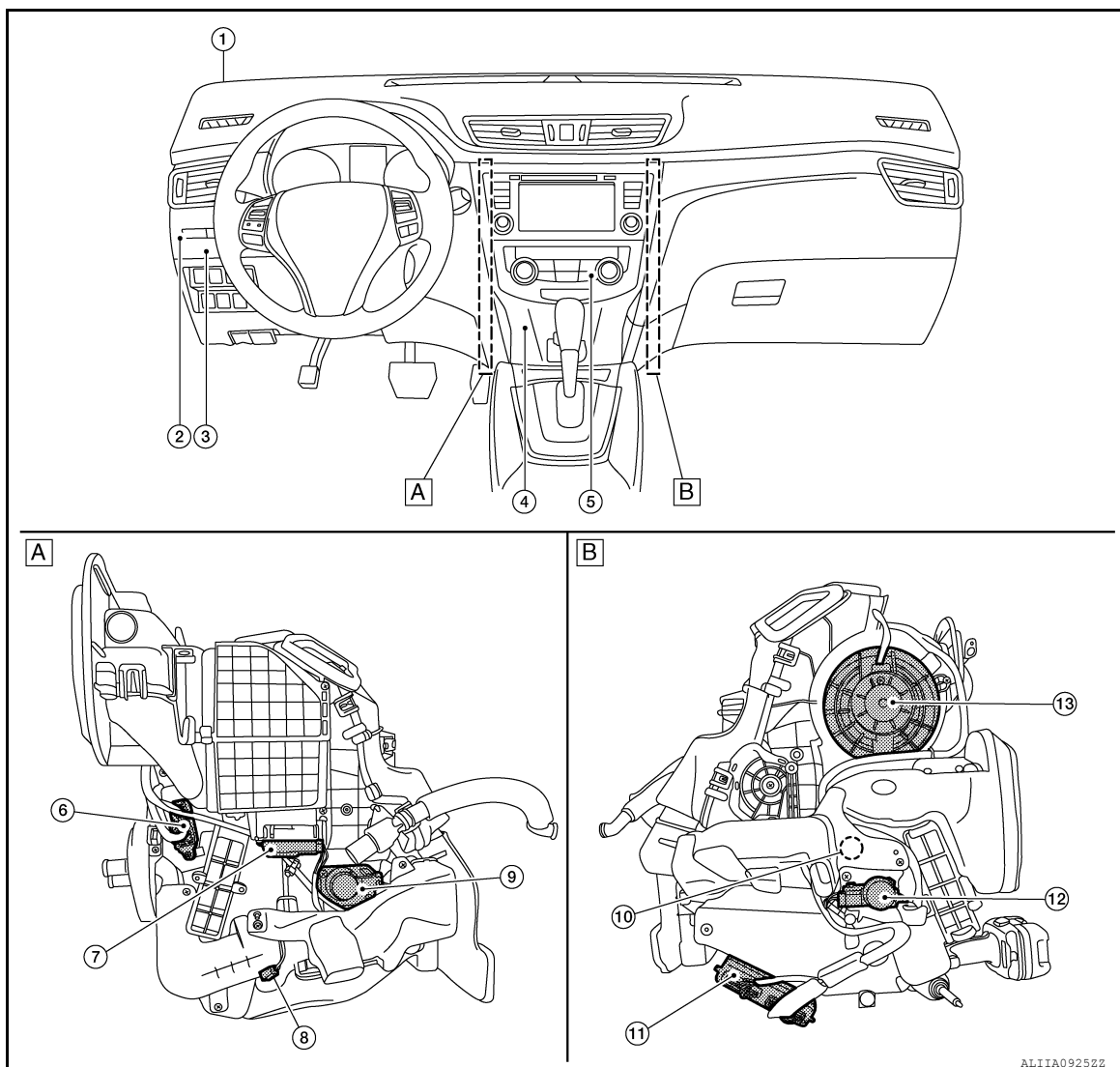
C. LH front of vehicle (view with front bumper fascia removed)

No.	Component	Description
1.	IPDM E/R	Refer to <a href="#">PCS-7, "RELAY CONTROL SYSTEM : System Description"</a> .
2.	ECM	The ECM sends a compressor ON request to the IPDM E/R based on the status of engine operation and load as well as refrigerant pressure information. If all the conditions are met for A/C operation, the ECM transmits the compressor ON request to the IPDM E/R.
3.	A/C Compressor	Vaporized refrigerant is drawn into the A/C compressor from the evaporator, where it is compressed to a high pressure, high temperature vapor. The hot, compressed vapor is then discharged to the condenser.
4.	Refrigerant pressure sensor	Refer to <a href="#">EC-28, "Refrigerant Pressure Sensor"</a> .
5.	Ambient sensor	The ambient sensor measures the temperature of the air surrounding the vehicle. The sensor uses a thermistor which is sensitive to the change in temperature. The electrical resistance of the thermistor decreases as temperature increases.

# COMPONENT PARTS

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]



A. Left side of A/C unit

B. Right side of A/C unit

No.	Component	Description
1.	Sunload sensor	Sunload sensor measures sunload amount. This sensor is a dual system so that sunload for driver side and passenger side are measured separately. This sensor converts sunload amount to voltage signal by photodiode and transmits to A/C auto amp.
2.	Front blower relay	The front blower relay controls the flow of current to fuse 17 and 27 in the Fuse Block (J/B). The relay is grounded when the ignition switch is in the ON position.
3.	BCM	The BCM receives the fan ON and A/C ON signals from the A/C auto amp. and sends a compressor ON request to the ECM.
4.	In-vehicle sensor	In-vehicle sensor measures temperature of intake air that flows through aspirator to passenger room. The sensor uses a thermistor which is sensitive to the change in temperature. The electrical resistance of the thermistor decreases as temperature increases.
5.	A/C switch assembly	The A/C switch assembly controls the operation of the A/C and heating system based on inputs from the temperature control knob, the mode switches, the blower control dial, the ambient temperature sensor, the intake sensor, and inputs received from the ECM across the CAN. Diagnosis of the A/C switch assembly can be performed using the CONSULT. There is no self-diagnostic feature available.
6.	Variable blower control	The variable blower control controls the speed of the blower motor by controlling the ground circuit of the blower motor. The front air control provides voltage to the gate of the variable blower control based on the position of the blower control dial.



## COMPONENT PARTS

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

No.	Component	Description
7.	Intake door motor	The intake door motor controls the position of the intake door. Fresh air is allowed to enter the cabin in one position, and recirculated inside air is allowed to enter in the other position. The intake door motor receives position commands from the A/C auto amp.
8.	Intake sensor	The intake sensor measures the temperature of the front evaporator fins. The sensor uses a thermistor which is sensitive to the change in temperature. The electrical resistance of the thermistor decreases as temperature increases.
9.	Air mix door motor LH	The air mix door controls the mix of hot or cold air that enters the ventilation system. It is controlled by the A/C auto amp. based on the position of the temperature dial. The air mix door motor LH receives position commands from the A/C auto amp.
10.	Mode door motor	The mode door controls the direction the conditioned air passes through the ventilation system. Through a series of levers and gears, the mode door controls the defrost door, the foot door, and the vent door. There are 5 preset positions: VENT, B/L, FOOT, D/F, and DEF. The mode door motor receives position commands from the A/C auto amp.
11.	A/C auto amp.	A/C auto amp. controls front automatic air conditioning system by inputting and calculating signals from each sensor and each switch.
12.	Air mix door motor RH	The air mix door controls the mix of hot or cold air that enters the ventilation system. It is controlled by the A/C auto amp. based on the position of the temperature dial. The air mix door motor RH receives position commands from the A/C auto amp.
13.	Front Blower motor	The blower motor varies the speed at which the air flows through the ventilation system.

A

B

C

D

E

F

G

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HAC

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O

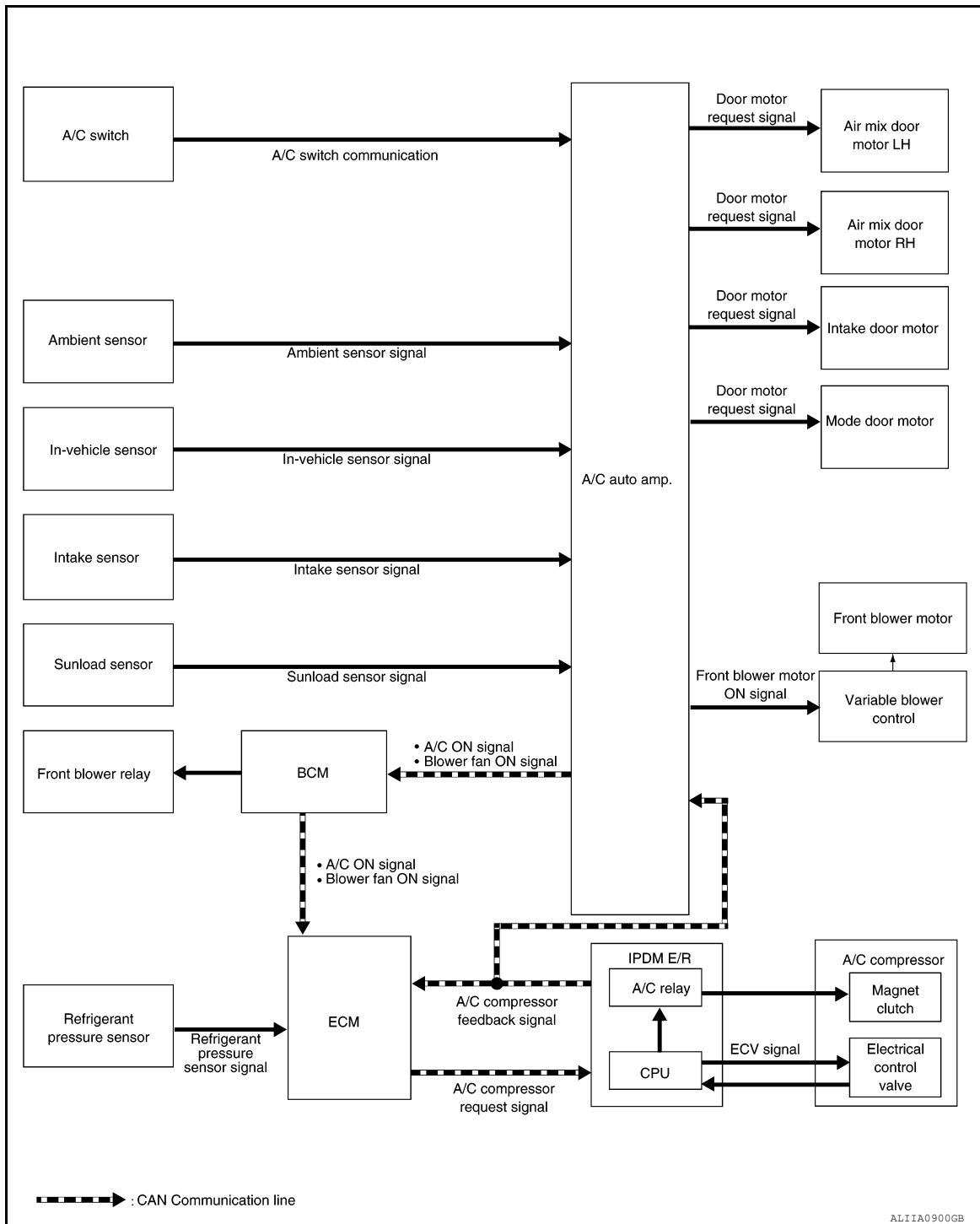
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## SYSTEM

### System Description

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### SYSTEM DIAGRAM



### SYSTEM DESCRIPTION

- Automatic air conditioning system is controlled by each function of A/C auto amp., ECM, IPDM E/R and BCM.

Control by A/C auto amp.

- [HAC-11, "Air Flow Control"](#)
- [HAC-12, "Air Inlet Control"](#)
- [HAC-13, "Air Outlet Control"](#)

## &lt; SYSTEM DESCRIPTION &gt;

- [HAC-13, "Compressor Control"](#)
- [HAC-13, "Door Control"](#)
- [HAC-18, "Temperature Control"](#)
- Correction for input value of each sensor

Ambient sensor (setting temperature correction)

- A/C auto amp. controls passenger room temperature so that the optimum level always matches the temperature level that the passenger may feel. Correction is applied to the target temperature that is set using temperature control dial, according to ambient temperature detected by ambient sensor.

In-vehicle sensor [in-vehicle temperature correction]

- Passenger room temperature detected by in-vehicle sensor is corrected for each front air conditioning control (driver side and passenger side).

Intake sensor (intake temperature correction)

- A/C auto amp. performs correction to change recognition intake temperature of A/C auto amp. quickly when difference is large between recognition intake temperature and intake temperature detected by intake temperature sensor. The correction is performed to change recognition intake temperature slowly when difference is small.

Sunload sensor (sunload amount correction)

- Sunload amount detected by sunload sensor is corrected for each air conditioning control.
- A/C auto amp. performs correction to change recognition sunload amount of A/C auto amp. slowly when sunload amount changes quickly, for example when entering or exiting a tunnel.

Set temperature correction

- A/C auto amp. performs correction to the target temperature set by the temperature control switch so as to match the temperature felt by the passengers depending on the ambient temperature detected by the ambient sensor, and controls it so the in-vehicle temperature is always the most suitable.

Control by ECM

- Cooling fan control  
Refer to [PCS-7, "RELAY CONTROL SYSTEM : System Description"](#).
- Air conditioning cut control  
Refer to [EC-47, "AIR CONDITIONING CUT CONTROL : System Description"](#).

Control by IPDM E/R

- Relay control  
Refer to [PCS-7, "RELAY CONTROL SYSTEM : System Description"](#).
- Cooling fan control  
Refer to [PCS-7, "RELAY CONTROL SYSTEM : System Description"](#).

Control by BCM

- Relay control  
Refer to [BCS-8, "BODY CONTROL SYSTEM : System Description"](#) (with Intelligent Key system) or [BCS-80, "BODY CONTROL SYSTEM : System Description"](#) (without Intelligent Key system).

## Air Flow Control

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## DESCRIPTION

- A/C auto amp. changes duty ratio of blower motor drive signal and controls air flow continuously. When air flow is increased, duty ratio of blower motor control signal gradually increases to prevent a sudden increase in air flow.
- In addition to manual control and automatic control, air flow control consists of starting fan speed control, low coolant temperature starting control, high in-vehicle temperature starting control and fan speed control at door motor operation

## AUTOMATIC AIR FLOW CONTROL

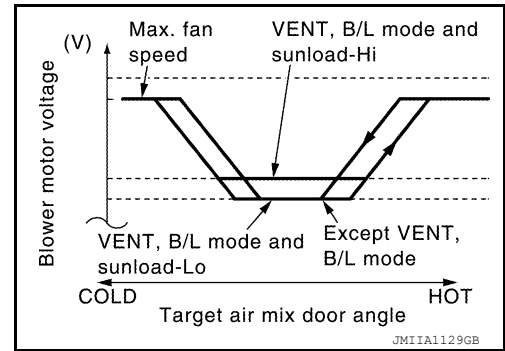
- A/C auto amp. decides target air flow depending on target air mix door opening angle.
- A/C auto amp. changes duty ratio of blower motor control signal and controls the air flow continuously so that air flow matches the target air flow.

# SYSTEM

## < SYSTEM DESCRIPTION >

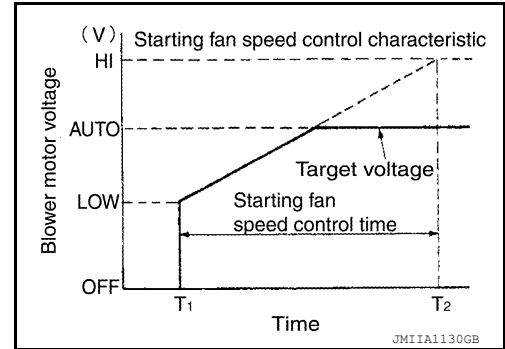
## [AUTOMATIC AIR CONDITIONING]

- When air outlet is VENT or B/L, the minimum air flow is changed depending on sunload.



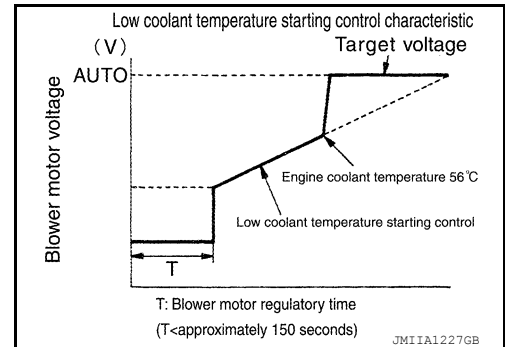
### STARTING AIR FLOW CONTROL

- When blower motor is activated, A/C auto amp. gradually increases duty ratio of blower motor control signal to prevent a sudden increase in discharge air flow.
- It takes approximately 8 seconds for air flow to reach HI from LOW.



### LOW COOLANT TEMPERATURE STARTING CONTROL

If the engine coolant temperature is 56°C (133°F) or less, to prevent a cold discharged air flow, A/C auto amp. suspends blower motor activation for a maximum of 150 seconds depending on target air mix door opening angle. After this, blower motor control signal is increased gradually, and blower motor is activated.



### HIGH IN-VEHICLE TEMPERATURE STARTING CONTROL

When front evaporator fin temperature is high [intake sensor value is 35°C (95°F) or more], to prevent a hot discharged air flow, A/C auto amp. suspends blower motor activation for approximately 3 seconds so that front evaporator is cooled by refrigerant.

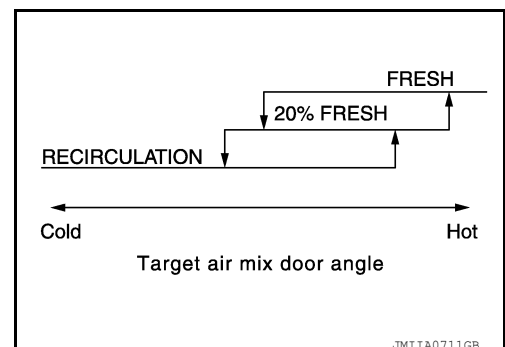
### FAN SPEED CONTROL AT DOOR MOTOR OPERATION

When mode door motor is activated while air flow is more than the specified value, A/C auto amp. reduces fan speed temporarily so that mode door moves smoothly.

### Air Inlet Control

INFOID:0000000011276568

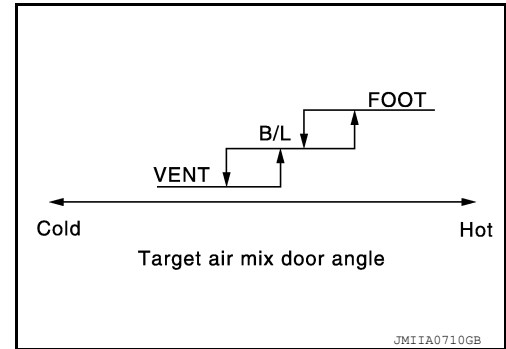
The intake door is automatically controlled by the temperature setting, ambient temperature, in-vehicle temperature, intake temperature, amount of sunload and ON/OFF operation of the compressor. Intake door automatic control selects FRE, 20% FRE, or REC depending on a target air mix door opening angle, based on in-vehicle temperature, ambient temperature, and sunload.



## Air Outlet Control

INFOID:0000000011276569

- While air outlet is in automatic control, A/C auto amp. selects the mode door position depending on a target air mix door angle and outlet air temperature calculated from sunload.
- If ambient temperature is excessively low, D/F is selected to prevent windshield fogging when air outlet is set to FOOT.



## Compressor Control

INFOID:0000000011276570

## DESCRIPTION

- When the compressor activation condition is satisfied while blower motor is activated, A/C auto amp. transmits A/C ON signal and blower fan ON signal to BCM.
- BCM transmits the A/C ON signal and blower fan ON signal to the ECM via CAN communication line.
- ECM judges that the compressor can be activated depending on the state of each sensor (refrigerant pressure sensor signal and others) and transmits A/C compressor request signal to IPDM E/R via CAN communication.
- IPDM E/R turns A/C relay ON and activates the compressor depending on request from ECM.

## COMPRESSOR PROTECTION CONTROL AT PRESSURE MALFUNCTION

When high-pressure side value that is detected by refrigerant pressure sensor is as per the following state, ECM requests IPDM E/R to turn A/C relay OFF and stops the compressor.

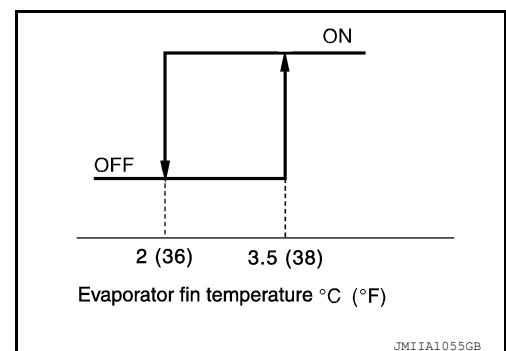
- 3.12 MPa (31.82 kg/cm<sup>2</sup>, 452.4 psi) or more (When the engine speed is less than 1,500 rpm)
- 2.74 MPa (27.95 kg/cm<sup>2</sup>, 397.3 psi) or more (When the engine speed is 1,500 rpm or more)
- 0.14 MPa (1.43 kg/cm<sup>2</sup>, 20.3 psi) or less

## COMPRESSOR OIL CIRCULATION CONTROL

When the engine starts while the engine coolant temperature is 56°C (133°F) or less, ECM activates the compressor for approximately 6 seconds and circulates the compressor lubricant once.

## LOW TEMPERATURE PROTECTION CONTROL

- When intake sensor detects that front evaporator fin temperature is 2°C (36°F) or less, A/C auto amp. requests ECM to turn compressor OFF, and stops the compressor.
- When the front evaporator fin temperature returns to 3.5°C (38°F) or more, the compressor is activated.



## AIR CONDITIONING CUT CONTROL

When set engine is running is excessively high load condition, ECM requests IPDM E/R to turn A/C relay OFF, and stops the compressor. Refer to [EC-47. "AIR CONDITIONING CUT CONTROL : System Description"](#).

## Door Control

INFOID:0000000011276571

## AIR MIX DOOR MOTOR (DRIVER SIDE)

## DESCRIPTION

- The step motor system is adopted for air mix door motor (driver side).
- When a drive signal is input from A/C auto amp. to door motor, a step motor built into the door motor rotates according to the drive signal, and then stops at the target door position.

# SYSTEM

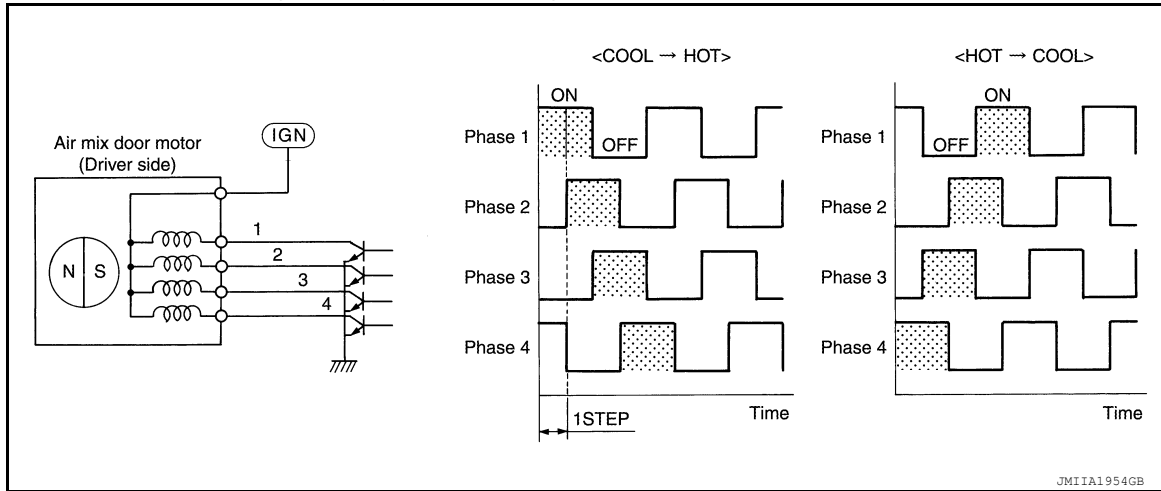
## < SYSTEM DESCRIPTION >

## [AUTOMATIC AIR CONDITIONING]

- Rotation of motor is transmitted to air mix door (driver side) [upper air mix door (driver side) and lower air mix door (driver side)] by link, rod and lever, then air flow temperature (driver side) is switched.

### DRIVE METHOD

- The 4 drive coils are excited in sequence in order to drive the motor.
- Direction of rotation is changeable by recomposing pattern of excitation.



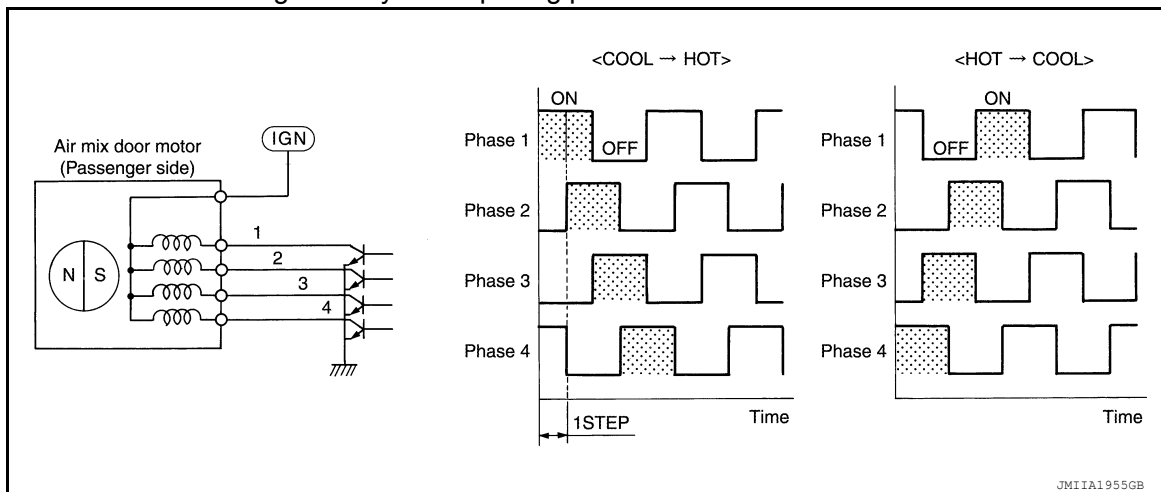
## AIR MIX DOOR MOTOR (PASSENGER SIDE)

### DESCRIPTION

- The step motor system is adopted for air mix door motor (passenger side).
- When a drive signal is input from A/C auto amp. to door motor, a step motor built into the door motor rotates according to the drive signal, and then stops at the target door position.
- Rotation of motor is transmitted to air mix door (passenger side) [upper air mix door (passenger side) and lower air mix door (passenger side)] by link, rod and lever, then air flow temperature (passenger side) is switched.

### DRIVE METHOD

- The 4 drive coils are excited in sequence in order to drive the motor.
- Direction of rotation is changeable by recomposing pattern of excitation.



## MODE DOOR MOTOR

### DESCRIPTION

- The step motor system is adopted for mode door motor.
- When a drive signal is input from A/C auto amp. to door motor, a step motor built into the door motor rotates according to the drive signal, and then stops at the target door position.
- Rotation of motor is transmitted to mode door (center ventilator and defroster door, sub defroster door, side ventilator door, and foot door) by link, rod, and lever, then air outlet is switched.

### DRIVE METHOD

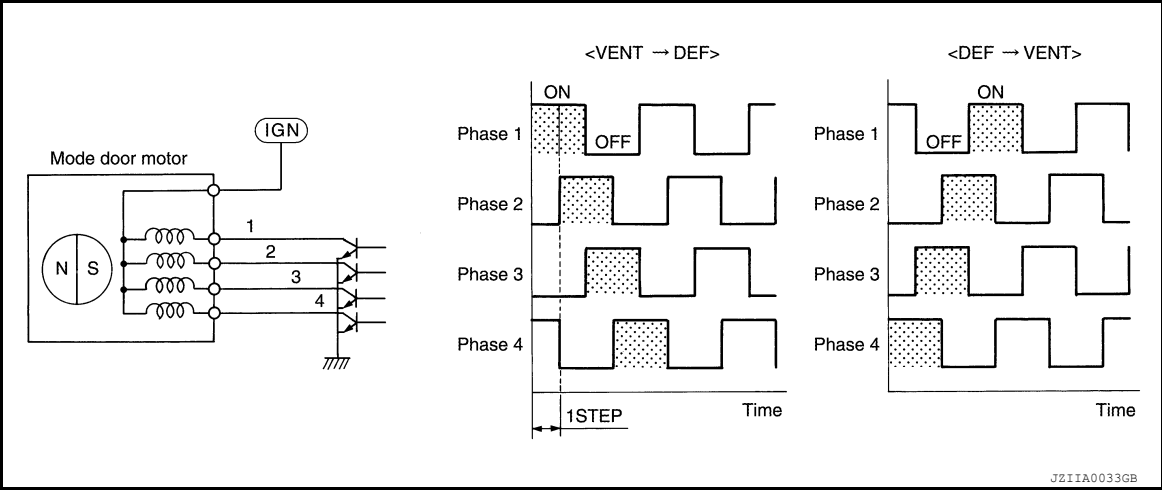
- The 4 drive coils are excited in sequence in order to drive the motor.

# SYSTEM

## < SYSTEM DESCRIPTION >

## [AUTOMATIC AIR CONDITIONING]

- Direction of rotation is changeable by recomposing pattern of excitation.



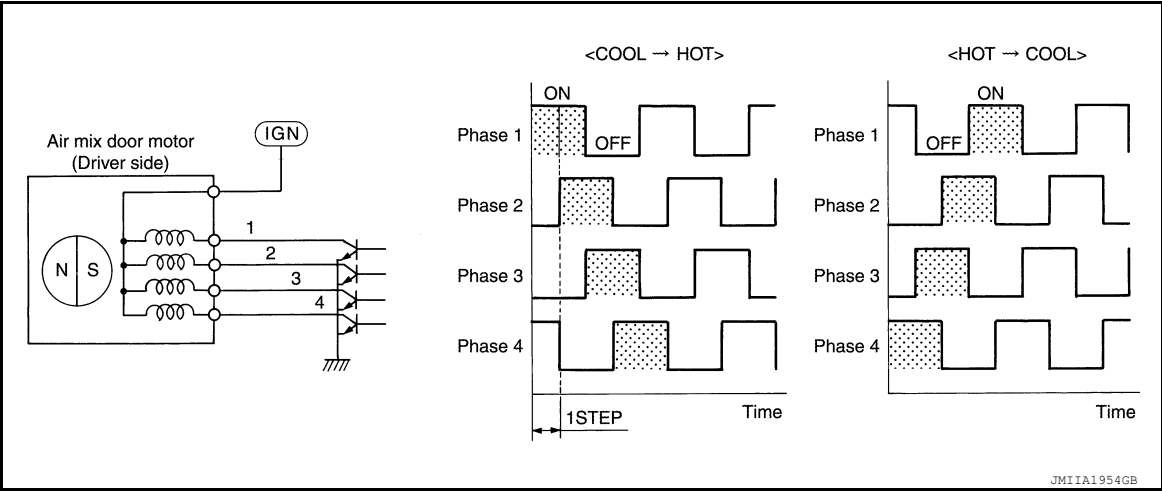
## INTAKE DOOR MOTOR

### DESCRIPTION

- The step motor system is adopted for intake door motor.
- When a drive signal is input from A/C auto amp. to door motor, a step motor built into the door motor rotates according to the drive signal, and then stops at the target door position.
- Rotation of motor is transmitted to intake door, then air flow is switched.

### DRIVE METHOD

- The 4 drive coils are excited in sequence in order to drive the motor.
- Direction of rotation is changeable by recomposing pattern of excitation.



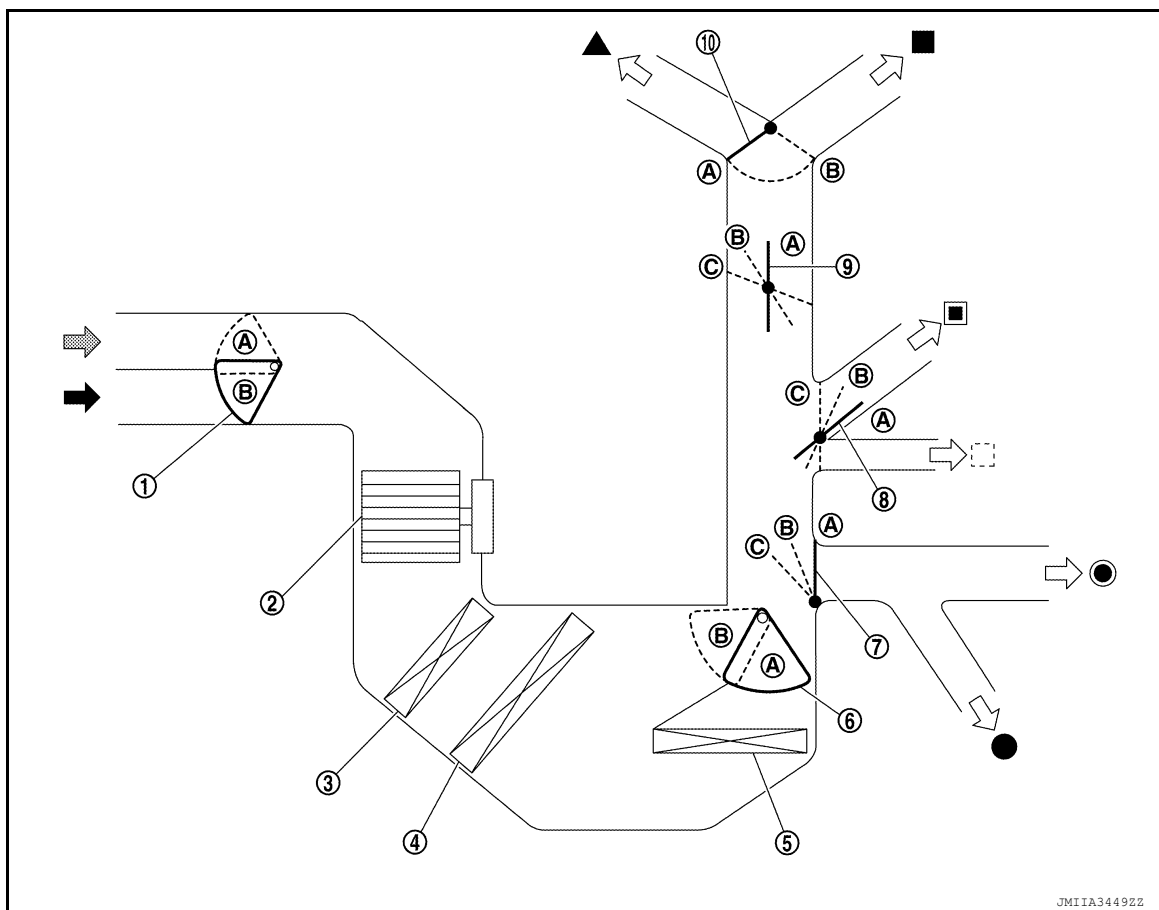
## SWITCHES AND THEIR CONTROL FUNCTION

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# SYSTEM

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]



- |  |                        |   |
|--|------------------------|---|
| ① Intake door                          | ② Blower motor         | ③ Air conditioner filter                    |
| ④ Evaporator                           | ⑤ Heater core          | ⑥ Air mix door (driver side/passenger side) |
| ⑦ Foot door                            | ⑧ Side ventilator door | ⑨ Sub defroster door                        |
| ⑩ Center ventilator and defroster door |                        |   |
| ← Fresh air intake                     | ← Recirculation air    | ← Discharge air                             |
| ▲ Defroster                            | ■ Center ventilator    | ■ Side ventilator                           |
| □ Rear ventilator                      | ● Front foot           | ● Rear foot                                 |

## NOTE:












The sub defroster door and side ventilator door include a permanent opening and does not fully close.



# SYSTEM

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

Switch position			Door position													
			Mode door				Intake door	Air mix door								
			Center ventilator and defroster door	Sub defroster door	Side ventilator door	Foot door		Driver side	Passenger side							
AUTO switch				AUTO				—	—	—						
MODE switch				(A)	(A)	(A)	(A)									
				(A)	(B)	(B)	(B)									
				(B)	(C)	(C)	(C)									
				(B)	(B)	(C)	(C)									
DEF switch				(B)	(A)	(C)	(A)	(A)	—	—						
REC switch*											(B)					
FRE switch*																
Temperature control dial (Driver side)	DUAL switch: OFF	Full cold 18°C		—	—	—	—	—	(A)							
		18.5°C – 31.5°C							AUTO							
		Full hot 32°C							(B)							
Temperature control dial (Driver side)	DUAL switch: ON	Full cold 18°C							(A)	—						
		18.5°C – 31.5°C							AUTO		—					
		Full hot 32°C							(B)							
Temperature control dial (Passenger side)		Full cold 18°C							—	—	—	—	—	—	(A)	
		18.5°C – 31.5°C													AUTO	
		Full hot 32°C													(B)	
ON/OFF switch		OFF		(B)	(C)	(C)	(C)		—							

\*: Inlet status is displayed by indicator during activating automatic control

## AIR DISTRIBUTION

Discharge air flow						
MODE/DEF setting position	Air outlet/distribution					
	Ventilator			Foot		Defroster
	Front		Rear	Front	Rear	
	Center	Side				
	47%	38%	15%	—	—	—
	25%	34%	13%	18%	10%	—

# SYSTEM

## < SYSTEM DESCRIPTION >

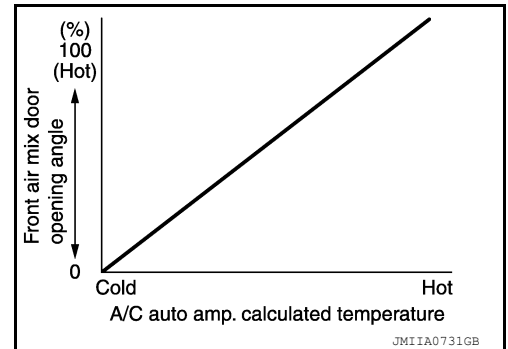
## [AUTOMATIC AIR CONDITIONING]

Discharge air flow						
MODE/DEF set- ting position	Air outlet/distribution					
	Ventilator			Foot		Defroster
	Front		Rear	Front	Rear	
	Center	Side				
	—	7%	4%	38%	24%	27%
	—	6%	2%	30%	17%	45%
	—	8%	2%	—	—	90%

## Temperature Control

INFOID:0000000011276572

- When ignition switch is in the ON position, A/C auto amp. always automatically controls temperature regardless of front air conditioning operational state.
- A/C auto amp. calculates the target air mix door opening angle depending on set temperature, in-vehicle temperature, ambient temperature, and sunload.
- Air mix door is controlled depending on the comparison of current air mix door opening angle and target air mix door opening angle.
- Regardless of in-vehicle temperature, ambient temperature, and sunload, air mix door is fixed at the fully cold position when set temperature is 18.0°C (60°F), and at the fully hot position when set temperature is 32.0°C (90°F).



## Fail-safe

INFOID:0000000011276573

### FAIL-SAFE FUNCTION

If a communication error exists between the A/C auto amp., and the AV control unit and preset switch for 30 seconds or longer, air conditioning is controlled under the following conditions:

<b>A/C switch</b>	<b>: ON</b>
<b>Air outlet</b>	<b>: AUTO</b>
<b>Air inlet</b>	<b>: FRE (Fresh air intake)</b>
<b>Blower fan speed</b>	<b>: AUTO</b>
<b>Set temperature</b>	<b>: Setting before communication error occurs</b>

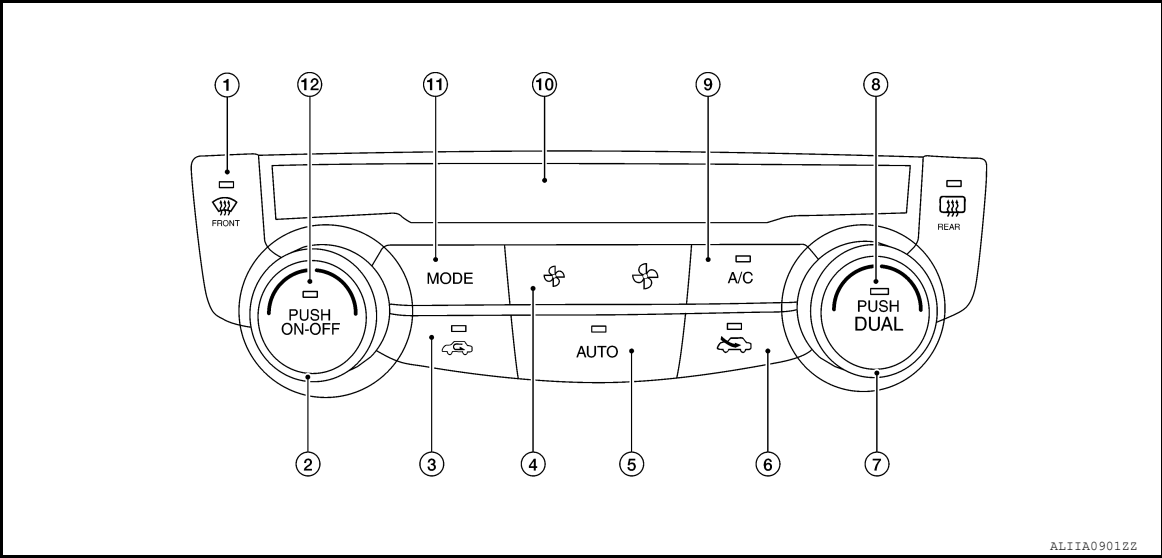
OPERATION

Switch Name and Function

INFOID:0000000011276574

CONTROL OPERATION

A/C Switch Assembly



1. Defroster switch

4. Fan control switch

7. Temperature control switch (passenger side)

10. Display
2. Temperature control switch (driver side)

5. AUTO switch

8. DUAL switch

11. Mode switch
3. Recirculation switch

6. Fresh air switch

9. A/C switch

12. ON/OFF switch

Switch Operation

Switch name	Function
Temperature control dial (Driver side)	Setting temperature is selected using this dial within a range between 18°C (60°F) and 32°C (90°F) at a rate of 0.5°C (1.0°F) per adjustment. <b>NOTE:</b> When air conditioning system is OFF, setting temperature can be selected only while air conditioning system status screen [only when MODE switch (driver side) is pressed] is indicated on display.
ON/OFF switch	Air conditioning turns ON ⇔ OFF each time this switch is pressed. <ul style="list-style-type: none"><li>When this switch is pressed while air conditioning is ON<ul style="list-style-type: none"><li>Air conditioning turns OFF and becomes the following status, when this switch is pressed.</li><li>Air outlet: FOOT</li><li>Air flow: OFF</li><li>Air inlet: Settings set before this switch is pressed</li><li>A/C switch: OFF</li></ul></li><li>When this switch is pressed while air conditioning is OFF<ul style="list-style-type: none"><li>Air conditioning turns ON and operates according to the settings set before air conditioning is turned OFF, when this switch is pressed.</li></ul></li></ul>



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# OPERATION

## < SYSTEM DESCRIPTION >

## [AUTOMATIC AIR CONDITIONING]

Switch name	Function
AUTO switch	<ul style="list-style-type: none"> <li>AUTO switch indicator turns ON and air conditioning becomes the following status, when this switch is pressed while air conditioning is ON. <ul style="list-style-type: none"> <li>Air outlet: Automatic control</li> <li>Air flow: Automatic control</li> <li>Air inlet: Settings set before this switch is pressed</li> <li>A/C switch: ON</li> </ul> </li> <li>Air conditioning turns ON and operates according to the following status, when this switch is pressed while air conditioning is OFF. (AUTO switch indicator turns ON) <ul style="list-style-type: none"> <li>Air outlet: Automatic control</li> <li>Air flow: Automatic control</li> <li>Air inlet: Settings set before this switch is pressed</li> <li>A/C switch: ON</li> </ul> </li> </ul> <p><b>NOTE:</b> When air outlet or air flow is manually operated while AUTO switch indicator is ON, AUTO switch indicator turns OFF. However, automatic control continues for other functions than air outlet or air flow.</p>
Fan switch	<ul style="list-style-type: none"> <li>Air flow can be set within a range between 1st – 7th speed according to switch operation. <ul style="list-style-type: none"> <li>Press +: Air flow increases</li> <li>Press -: Air flow decreases</li> </ul> </li> <li>Air conditioning turns ON and operates according to the following status, when this switch is pressed while air conditioning is OFF. <ul style="list-style-type: none"> <li>Air outlet: Automatic control</li> <li>Air flow: 1st speed</li> <li>Air inlet: Settings set before this switch is pressed</li> <li>A/C switch: Settings set before air conditioning is turned OFF</li> </ul> </li> </ul> <p><b>NOTE:</b> Automatic air flow control is cancelled (AUTO switch indicator turns OFF), when fan switch is pressed while AUTO switch indicator is ON.</p>
A/C switch	<p>Compressor control (switch indicator) changes between ON ⇔ OFF each time this switch is pressed while blower motor is operated.</p> <p><b>NOTE:</b> A/C switch cannot be turned ON when blower motor is OFF.</p>
DUAL switch	<p>Left and right ventilation temperature separately control (switch indicator) changes between ON ⇔ OFF each time this switch is pressed while blower motor is operated.</p> <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>Setting temperature for passenger side is the same as that for driver side when left and right ventilation temperature separately control is OFF.</li> <li>DUAL switch operation is not accepted when DEF mode is ON.</li> </ul>
Temperature control dial (Passenger side)	<ul style="list-style-type: none"> <li>Outlet air flow temperature of passenger side can be changed without changing outlet air flow temperature of driver side.</li> <li>Setting temperature is selected using this dial within a range between 18°C (60°F) and 32°C (90°F) at a rate of 0.5°C (1.0°F) per adjustment.</li> </ul> <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>When air conditioning system is OFF, setting temperature can be selected only while air conditioning system status screen [only when MODE switch (passenger side) is pressed] is indicated on display.</li> <li>When DEF mode is ON, temperature control dial (passenger side) is inoperative.</li> </ul>
REC switch	<p>Switch indicator turns ON and air inlet is set to recirculation (REC), when this switch is pressed.</p> <p><b>NOTE:</b> Air inlet can be changed when air conditioning is in OFF status.</p>
FRE switch	<p>Switch indicator turns ON and air inlet is set to fresh air intake (FRE), when this switch is pressed.</p> <p><b>NOTE:</b> Air inlet can be changed when air conditioning is in OFF status.</p>

# OPERATION

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

Switch name	Function
MODE switch	<p>Air outlet changes from VENT⇒ B/L ⇒ FOOT ⇒ D/F ⇒ VENT each time this switch is pressed.</p> <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>• Air outlet can be changed when air conditioning is in OFF status.</li> <li>• Automatic air outlet control is cancelled (AUTO switch indicator turns OFF), when MODE switch is pressed while AUTO switch indicator is ON.</li> </ul>
DEF switch	<p>DEF mode (switch indicator) changes between ON ⇔ OFF each time switch is pressed.</p> <ul style="list-style-type: none"> <li>• When this switch is pressed while air conditioning is ON <ul style="list-style-type: none"> <li>- Air conditioning becomes the following status when DEF mode is turned ON. <ul style="list-style-type: none"> <li>• Air outlet: DEF</li> <li>• Air flow: Settings set before DEF mode is turned ON</li> <li>• Air inlet: Fresh air intake</li> <li>• A/C switch: ON</li> </ul> </li> <li>- Air conditioning becomes the following status when DEF mode is turned OFF. <ul style="list-style-type: none"> <li>• Air outlet: Settings set before DEF mode is turned ON</li> <li>• Air flow: Settings set before DEF mode is turned OFF</li> <li>• Air inlet: Settings set before DEF mode is turned OFF</li> <li>• A/C switch: Settings set before DEF mode is turned OFF</li> </ul> </li> </ul> </li> <li>• When this switch is pressed while air conditioning is OFF <ul style="list-style-type: none"> <li>- Air conditioning turns ON and operates in the following status, when DEF mode is turned ON. <ul style="list-style-type: none"> <li>• Air outlet: DEF</li> <li>• Air flow: Automatic control</li> <li>• Air inlet: Fresh air intake</li> <li>• A/C switch: ON</li> </ul> </li> <li>- Air conditioning becomes the following status when DEF mode is turned OFF. <ul style="list-style-type: none"> <li>• Air outlet: Automatic control</li> <li>• Air flow: Settings set before DEF mode is turned OFF</li> <li>• Air inlet: Settings set before DEF mode is turned OFF</li> <li>• A/C switch: Settings set before DEF mode is turned OFF</li> </ul> </li> </ul> </li> </ul> <p><b>NOTE:</b></p> <p>When DEF mode is turned ON while AUTO switch indicator is turned ON, AUTO switch indicator turns OFF. However, automatic air flow control continues.</p>

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# DIAGNOSIS SYSTEM (A/C AUTO AMP.)

< SYSTEM DESCRIPTION >




[AUTOMATIC AIR CONDITIONING]

## DIAGNOSIS SYSTEM (A/C AUTO AMP.)

### Description

INFOID:0000000011276575

Air conditioning system performs self-diagnosis, operation check, function diagnosis, and various settings using diagnosis function of each control unit.

ECU	Diagnostic item (CONSULT)	
A/C auto amp.	 HVAC	Self Diagnostic Result
		Data Monitor
		Active Test
		Work support
ECM	 ENGINE	Self Diagnostic Result
		Data Monitor
IPDM E/R	 IPDM E/R	Self Diagnostic Result
		Data Monitor

### CONSULT Function (HVAC)

INFOID:0000000011276576

CONSULT can display each diagnosis item using the diagnosis test modes as shown.

#### CONSULT application items

Diagnosis mode	Description
Self Diagnostic Result	Displays the diagnosis results judged by A/C auto amp.
Data Monitor	Displays A/C auto amp. input/output data in real time.
Work support	Changes the setting for each system function.
Active Test	The signals used to activate each device are forcibly supplied from A/C auto amp.
ECU Identification	Displays the A/C auto amp. number.

### SELF DIAGNOSTIC RESULT

Refer to [HAC-33, "DTC Index"](#).

#### Display Item List

DTC	Items (CONSULT screen terms)	Diagnostic item is detected when...	Possible cause
U1000	CAN COMM CIRCUIT	When A/C auto amp. is not transmitting or receiving CAN communication signal for 2 or more seconds.	CAN communication system
U1010	CONTROL UNIT (CAN)	When detecting error during the initial diagnosis of CAN controller of A/C auto amp.	A/C auto amp.
B24A0	A/C AUTO AMP.	A/C auto amp. EEPROM system is malfunctioning.	A/C auto amp.
B24A1	A/C AUTO AMP. POWER SUPPLY	Detected power supply voltage is out of range.	<ul style="list-style-type: none"><li>A/C auto amp.</li><li>Harness and connector (Power supply circuit is open, or there is a short in the circuit)</li></ul>
B24A6	IN-CAR SENSOR	Detected temperature at in-vehicle sensor is out of range.	<ul style="list-style-type: none"><li>In-vehicle sensor</li><li>A/C auto amp.</li><li>Harness and connector (In-vehicle sensor circuit is open, or there is a short in the circuit)</li></ul>

# DIAGNOSIS SYSTEM (A/C AUTO AMP.)

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

DTC	Items (CONSULT screen terms)	Diagnostic item is detected when...	Possible cause
B24A4	EVAP TEMP SEN	Detected temperature at intake sensor is out of range.	<ul style="list-style-type: none"> <li>Intake sensor</li> <li>A/C auto amp.</li> <li>Harness and connector (Intake sensor circuit is open, or there is a short in the circuit)</li> </ul>
B24A9*	SUNLOAD SEN	Detected calorie at sunload sensor 1395 w/m <sup>2</sup> (1200 kcal/m <sup>2</sup> ·h).	<ul style="list-style-type: none"> <li>Sunload sensor</li> <li>A/C auto amp.</li> <li>Harness and connector (Sunload sensor circuit is open, or there is a short in the circuit)</li> </ul>
B24BB	DR AIRMIX ACTR	Short or open circuit of air mix door motor drive signal.	<ul style="list-style-type: none"> <li>Air mix door motor LH</li> <li>A/C auto amp.</li> <li>Harness and connector (Air mix door motor is open or shorted)</li> </ul>
B24BD	AS AIRMIX ACTR	Short or open circuit of air mix door motor drive signal.	<ul style="list-style-type: none"> <li>Air mix door motor RH</li> <li>A/C auto amp.</li> <li>Harness and connector (Air mix door motor is open or shorted)</li> </ul>
B24B4	A/C CONTROL	Short or open circuit of A/C switch communication.	<ul style="list-style-type: none"> <li>A/C switch</li> <li>A/C auto amp.</li> <li>Harness and connector (A/C switch is open or shorted)</li> </ul>
B24B6			
B24B7	INTAKE ACTR	Short or open circuit of intake door motor drive signal.	<ul style="list-style-type: none"> <li>Intake door motor</li> <li>A/C auto amp.</li> <li>Harness and connector (Intake door motor is open or shorted)</li> </ul>
B24B9	MODE DOOR ACTR	Short or open circuit of mode door motor drive signal.	<ul style="list-style-type: none"> <li>Mode door motor</li> <li>A/C auto amp.</li> <li>Harness and connector (Mode door motor is open or shorted)</li> </ul>
B24C3	BLOWER MOTOR FEEDBACK	Short or open circuit.	<ul style="list-style-type: none"> <li>Front blower motor</li> <li>Front blower motor relay</li> <li>Variable blower control</li> <li>A/C auto amp.</li> <li>Harness and connector</li> </ul>
B24C6	BLOWER MOTOR CONTROL		
B24D4	A/C CONTROL COMMUNICATION	Short or open circuit.	<ul style="list-style-type: none"> <li>A/C switch</li> <li>A/C auto amp.</li> <li>Harness and connector (A/C switch is open or shorted)</li> </ul>

\*: Perform self-diagnosis under sunshine. When performing indoors, aim a light (more than 60 W) at sunload sensor, otherwise self-diagnosis reports an error even though the sunload sensor is functioning normally.

## DATA MONITOR

Display item list

Monitor item [Unit]	Description
AMB TEMP SEN [°C]	Ambient sensor value converted from ambient sensor signal received from ambient sensor
IN-VEH TEMP [°]	In-vehicle sensor value converted from in-vehicle sensor signal received from in-vehicle sensor
INT TEMP SEN [°C]	Intake sensor value converted from intake sensor signal received from intake sensor
SUNLOAD SEN [w/m <sup>2</sup> ]	Sunload sensor value converted from sunload sensor signal received from sunload sensor
AMB SEN CAL [°]	Ambient sensor value calculated by A/C auto amp.

# DIAGNOSIS SYSTEM (A/C AUTO AMP.)

## < SYSTEM DESCRIPTION >

## [AUTOMATIC AIR CONDITIONING]

Monitor item [Unit]	Description
IN-VEH CAL [°C]	In-vehicle sensor value calculated by A/C auto amp.
INT TEMP CAL [°C]	Intake sensor value calculated by A/C auto amp.
SUNL SEN CAL [w/m <sup>2</sup> ]	Sunload sensor value calculated by A/C auto amp.
COMP REQ SIG [On/Off]	Displays A/C switch ON/OFF status transmitted to other units via CAN communication
COMP ECV DUTY [%]	Duty ratio of ECV (electrical control valve) judged by A/C auto amp.
FAN REQ SIG [On/Off]	Displays blower switch ON/OFF status transmitted to other units via CAN communication
FAN DUTY [%]	Duty ratio of blower motor judged by A/C auto amp.
XM	Target discharge air temperature judged by A/C auto amp. according to the temperature setting and the value from each sensor
ENG COOL TEMP [°C]	Water temperature signal value received from ECM via CAN communication
VEHICLE SPEED [km/h (mph)]	Vehicle speed signal value received from meter via CAN communication

## WORK SUPPORT

Work item	Description	Reference
TEMP SET CORRECT (Setting of difference between temperature setting and control temperature)	If the temperature felt by the customer is different than the airflow temperature controlled by the temperature setting, the auto amplifier control temperature can be adjusted to compensate for the temperature setting.	<a href="#">HAC-50. "Temperature Setting Trimmer"</a>
REC MEMORY SET (REC memory function setting)	<ul style="list-style-type: none"> <li>If the ignition switch is turned to the OFF position while the REC switch is set to ON (recirculation), "With" or "Without" of the REC switch ON (recirculation) condition can be selected.</li> <li>If "With" was set, the REC switch will be ON (recirculation) when turning the ignition switch to the ON position again.</li> <li>If "Without" was set, the air inlets will be controlled automatically when turning the ignition switch to the ON position again.</li> </ul>	<a href="#">HAC-51. "Inlet Port Memory Function (REC)"</a>
FRE MEMORY SET (FRE memory function setting)	<ul style="list-style-type: none"> <li>If the ignition switch is turned to the OFF position while the FRE switch is set to ON (fresh air intake), "With" or "Without" of the FRE switch ON (fresh air intake) condition can be selected.</li> <li>If "With" was set, the FRE switch will be ON (fresh air intake) when turning the ignition switch to the ON position again.</li> <li>If "Without" was set, the air inlets will be controlled automatically when turning the ignition switch to the ON position again.</li> </ul>	<a href="#">HAC-50. "Inlet Port Memory Function (FRE)"</a>
BLOW SET	Setting change of foot position setting trimmer can be performed.	<a href="#">HAC-50. "Foot Position Setting Trimmer"</a>
Door Motor Starting Position Reset	Starting position reset of air mix door motor and mode door motor can be performed.	<a href="#">HAC-52. "Work Procedure"</a>
TARGET EVAPORATOR TEMP UPPER LIMIT SETTING	Set the target evaporator upper temperature limit.	<a href="#">HAC-51. "Target Evaporator Temp Upper Limit"</a>

### NOTE:

When the battery cable is disconnected from the negative terminal or when the battery voltage becomes 10V or less, the setting of WORK SUPPORT may be cancelled.

## ACTIVE TEST

Test item	Description
HVAC TEST	The operation check of A/C system can be performed by selecting the mode. Refer to the following table for the conditions of each mode.
ALL SEG	All switch indicator and display indication are turned ON.

## HVAC TEST



## DIAGNOSIS SYSTEM (A/C AUTO AMP.)

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

	Test item						
	MODE 1	MODE 2	MODE 3	MODE 4	MODE 5	MODE 6	MODE 7
Mode door position	VENT	VENT	B/L	B/L	D/F1	D/F2	DEF
Intake door position	REC	REC	20%FRE	20%FRE	FRE	FRE	FRE
Air mix door position (driver & passenger side)	FULL COLD	FULL COLD	FULL COLD	FULL HOT	FULL HOT	FULL HOT	FULL HOT
Blower motor (Applied voltage)	35%	35%	60%	60%	90%	90%	35%
A/C compressor (Mag- net clutch)	ON	ON	ON	ON	OFF	OFF	ON
ECV duty	80%	80%	40%	40%	0%	0%	90%

### NOTE:

Perform the inspection of each output device after starting the engine, because the A/C compressor has been operating.

A  
B  
C  
D  
E  
F  
G  
H  
HAC  
J  
K  
L  
M  
N  
O  
P

# DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

## DIAGNOSIS SYSTEM (IPDM E/R)

### CONSULT Function (IPDM E/R)

INFOID:000000011379868

#### APPLICATION ITEM

CONSULT performs the following functions via CAN communication with IPDM E/R.

Direct Diagnostic Mode	Description
ECU Identification	The IPDM E/R part number is displayed.
Self Diagnostic Result	The IPDM E/R self diagnostic results are displayed.
Data Monitor	The IPDM E/R input/output data is displayed in real time.
Active Test	The IPDM E/R activates outputs to test components.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

#### ECU IDENTIFICATION

The IPDM E/R part number is displayed.

#### SELF DIAGNOSTIC RESULT

Refer to [PCS-22. "DTC Index"](#).

#### DATA MONITOR

Monitor Item [Unit]	Description
REVERSE SIGNAL [Open/Close]	Indicates condition of transmission range switch R (Reverse) position.
IGN RELAY [Open/Close]	Indicates condition of ignition relay-1.
PUSH SW [Open/Close]	Indicates condition of push-button ignition switch.
INTERLOCK/PNP SW [Open/Close]	Indicates condition of transmission range switch P (Park) and N (Neutral) positions.
OIL PRESSURE SW [Open/Close]	Indicates condition of oil pressure switch.
HOOD SW [Open/Close]	Indicates condition of hood switch.
COMPRESSOR [OFF/ON]	Indicates condition of A/C compressor.
HORN RELAY [OFF/ ON]	Indicates condition of horn relay.
COOLING FAN [OFF/ON]	Indicates condition of cooling fan relay-1.
FRONT WIPER HI/LO RELAY [OFF/ON]	Indicates condition of front wiper high relay.
FRONT WIPER RELAY [OFF/ON]	Indicates condition of front wiper relay.
IGN RELAY OFF STATUS [OFF/ON]	Indicates condition of ignition relay-1 OFF status.
IGN RELAY ON STATUS [OFF/ON]	Indicates condition of ignition relay-1 ON status.
COOLING FAN RELAY 1 [OFF/ON]	Indicates condition of cooling fan relay-1.
STARTER RELAY [OFF/ON]	Indicates condition of starter relay.
COMP ECV DUTY [%]	Indicates condition of A/C compressor.
COOLING FAN RELAY 2 [%]	Indicates condition of cooling fan relay-2.
FR FOG LAMP LH [%]	Indicates condition of front fog lamp LH.
FR FOG LAMP RH [%]	Indicates condition of front fog lamp RH.
PARKING LAMP [%]	Indicates condition of parking lamp.
TAIL LAMP LH [%]	Indicates condition of tail lamp LH.
TAIL LAMP RH [%]	Indicates condition of tail lamp RH.
DAYTIME RUNNING LIGHT LH [%]	Indicates condition of daytime running light LH.
DAYTIME RUNNING LIGHT RH [%]	Indicates condition of daytime running light RH.
HEADLAMP (HI) LH [%]	Indicates condition of headlamp high beam LH.

# DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

Monitor Item [Unit]	Description	
HEADLAMP (HI) RH [%]	Indicates condition of headlamp high beam RH.	A
HEADLAMP (LO) LH [%]	Indicates condition of headlamp low beam LH.	
HEADLAMP (LO) RH [%]	Indicates condition of headlamp low beam RH.	B
A/C RELAY STUCK [NG/OK]	Indicates condition of A/C relay.	
A/C RELAY [Off/On]	Indicates condition of A/C relay.	
COMP ECV STATUS [NG/OK]	Indicates condition of A/C compressor.	C
VEHICLE SECURITY HORN [Off/On]	Indicates condition of horn relay.	
BATTERY CURRENT SENSOR [NG/OK]	Indicates condition of battery current sensor.	D
FRONT FOG LAMP [Off/On]	Indicates condition of front fog lamps.	
COMP ECV CURRENT [A]	Indicates condition of A/C compressor current.	
BATTERY VOLTAGE [V]	Indicates condition of battery voltage.	E
COOLING FAN DUTY [%]	Indicates condition of cooling fans.	
HOOD SW (CAN) [OPEN/CLOSE]	Indicates condition of hood switch.	F
FRONT WIPER [STOP/LOW/HIGH]	Indicates condition of front wiper motor.	
FR WIPER STOP POSITION [STOP P/ACTIVE P]	Indicates condition of front wiper motor stop.	
HEADLAMP (HI) [Off/On]	Indicates condition of headlamp high beams.	G
HEADLAMP (LO) [Off/On]	Indicates condition of headlamp low beams.	
IGNITION RELAY STATUS [Off/On]	Indicates condition of ignition relay-1.	
IGN RELAY MONITOR [Off/On]	Indicates condition of ignition relay-1 feedback.	H
IGNITION POWER SUPPLY [Off/On]	Indicates condition of ignition relay-1.	
INTERLOCK/PNP SW (CAN) [Off/On]	Indicates condition of transmission range switch P (Park) and N (Neutral) positions.	HAC
PUSH-BUTTON IGN SW (CAN) [Off/On]	Indicates condition of push-button ignition switch.	
TAIL LAMP [Off/On]	Indicates condition of tail lamps.	J
REVERSE SIGNAL (CAN) [Off/On]	Indicates condition of transmission range switch R (Reverse) position.	
ST&ST CONT RELAY STATUS [Off/ST R On]	Indicates condition of starter cut and starter relays.	K
STARTER MOTOR STATUS [Off/On]	Indicates condition of starter motor.	
STARTER RELAY (CAN) [LOW/HIGH]	Indicates condition of starter relay.	
IPDM NOT SLEEP [NO RDY/RDY]	Indicates condition of IPDM E/R sleep status.	L
AFTER COOLING TIME [No request/Request]	Indicates condition of cooling fan request.	
AFTER COOLING SPEED [%]	Indicates condition of cooling fans.	M
COOLING FAN TYPE [NISSAN/RENAULT]	Indicates cooling fan type.	
COMPRESSOR REQ1 [Off/On]	Indicates condition of A/C compressor request.	
VHCL SECURITY HORN REQ [Off/On]	Indicates condition of horn relay request.	N
DTRL REQ [Off/On]	Indicates condition of daytime running light request.	
SLEEP/WAKE UP [WAKEUP/SLEEP]	Indicates condition of IPDM E/R sleep/wake.	O
CRANKING ENABLE-TCM [NG/OK]	Indicates condition of crank enable from TCM.	
CRANKING ENABLE-ECM [NG/OK]	Indicates condition of crank enable from ECM.	
CAN DIAGNOSIS [NG/OK]	Indicates condition of CAN diagnosis.	P
FRONT FOG LAMP REQ [Off/On]	Indicates condition of front fog lamp request.	
HIGH BEAM REQ [Off/On]	Indicates condition of headlamp high beam request.	
HORN CHIRP [Off/On]	Indicates condition of horn relay request.	
COOLING FAN REQ [%]	Indicates condition of cooling fan request.	
ENGINE STATUS [STOP/RUN/IDLING]	Indicates condition of engine status.	

## DIAGNOSIS SYSTEM (IPDM E/R)

### < SYSTEM DESCRIPTION >

### [AUTOMATIC AIR CONDITIONING]

Monitor Item [Unit]	Description
TURN SIGNAL REQ [Off/LH/RH]	Indicates condition of turn signal request.
FR WIPER REQ [RETURN/LOW/HIGH]	Indicates condition of front wiper motor request.
SHIFT POSITION [P/R/N/D/L]	Indicates condition of transmission range switch positions.
LOW BEAM REQ [Off/On]	Indicates condition of headlamp low beam request.
POSITION LIGHT REQ [Off/On]	Indicates condition of parking lamp request.
COMPRESSOR REQ2 [Off/On]	Indicates condition of A/C compressor request.
IGNITION SW [Off/On]	Indicates condition of ignition switch.
VEHICLE SPEED (METER) [mph/km/h]	Indicates vehicle speed.
BAT DISCHARGE COUNT [0-100]	Indicates condition of battery discharge.
BATTERY STATUS [NG/OK]	Indicates battery status.

### ACTIVE TEST

Test item	Description
HORN	This test is able to check horn operation [Off/On].
FRONT WIPER	This test is able to check wiper motor operation [Off/Low/High].
COMPRESSOR	This test is able to check A/C compressor operation [Off/On].
COOLING FAN (DUAL)	This test is able to check cooling fan operation [Off/LO/HI].
HEADLAMP (HI)	This test is able to check headlamp high beam operation [Off/3/5].
HEADLAMP (LO)	This test is able to check headlamp low beam operation [Off/3/5].
FRONT FOG LAMP	This test is able to check front fog lamp operation [Off/3/5].
DAYTIME RUNNING LAMP	This test is able to check daytime running lamp operation [Off/3/5].
PARKING LAMP	This test is able to check parking lamp operation [Off/3/5].
TAIL LAMP	This test is able to check tail lamp operation [Off/3/5].

### CAN DIAG SUPPORT MNTR

Refer to [LAN-14, "CAN Diagnostic Support Monitor"](#).

## ECU DIAGNOSIS INFORMATION

## A/C AUTO AMP.

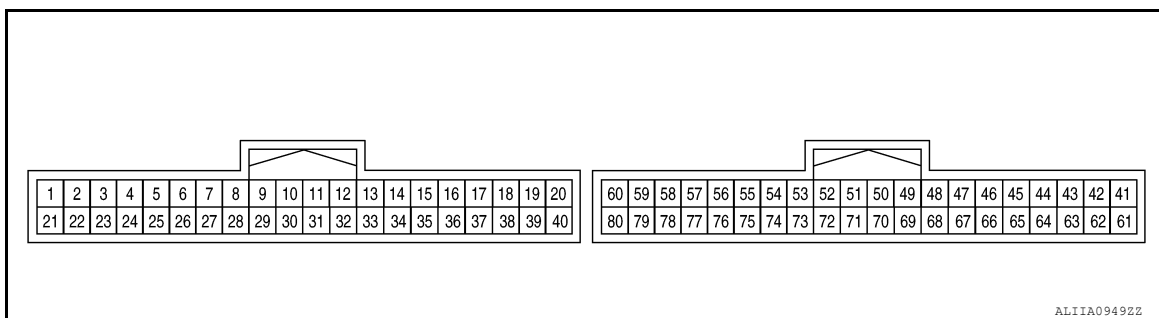
## Reference Value

INFOID:0000000011276578

## VALUES ON THE DIAGNOSIS TOOL

Monitor item	Condition		Value/Status
AMB TEMP SEN	Ignition switch ON	—	22 - 131°F (-30 - 55°C)
IN-VEH TEMP	Ignition switch ON	—	22 - 131°F (-30 - 55°C)
INT TEMP SEN	Ignition switch ON	—	22 - 131°F (-30 - 55°C)
SUNLOAD SEN	Ignition switch ON	—	0 - 1395 w/m <sup>2</sup> (0 - 1200 kcal/m <sup>2</sup> ·h)
AMB SEN CAL	Ignition switch ON	—	22 - 131°F (-30 - 55°C)
IN-VEH CAL	Ignition switch ON	—	22 - 131°F (-30 - 55°C)
INT TEMP CAL	Ignition switch ON	—	22 - 131°F (-30 - 55°C)
SUNL SEN CAL	Ignition switch ON	—	0 - 1395 w/m <sup>2</sup> (0 - 1200 kcal/m <sup>2</sup> ·h)
COMP REQ SIG	Engine: Run at idle after warming up	A/C switch: ON (A/C compressor operation status)	On
		A/C switch: OFF	Off
COMP ECV DUTY	Engine: Run at idle after warming up	A/C switch: ON (Compressor operation status)	1 - 100%
		A/C switch: OFF	0%
FAN REQ SIG	Engine: Run at idle after warming up	Blower fan: ON	On
		Blower fan: OFF	Off
FAN DUTY	Engine: Run at idle after warming up	Blower fan: ON	25 - 85%
		Blower fan: OFF	0%
XM	Ignition switch ON	—	-100 - 155
ENG COOL TEMP	Ignition switch ON	—	Values according to coolant temperature
VEHICLE SPEED	Driving	—	Equivalent to speedometer reading

## TERMINAL LAYOUT

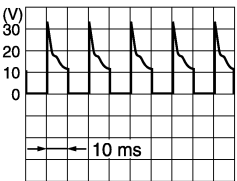
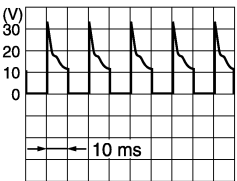
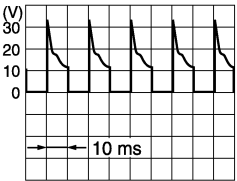
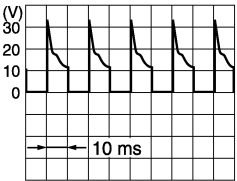


## PHYSICAL VALUES

# A/C AUTO AMP.

< ECU DIAGNOSIS INFORMATION >

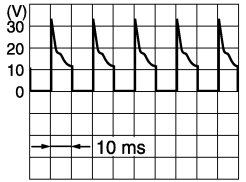
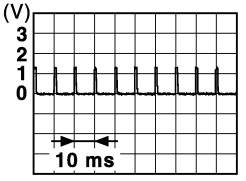
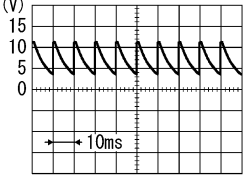

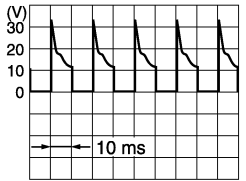
[AUTOMATIC AIR CONDITIONING]

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
1 (SB)	3 (B)	Ignition power supply	Input	Ignition switch ON	Battery voltage
3 (B)	Ground	Ground	—	Ignition switch ON	0 – 0.1 V
11 (L)	3 (B)	CAN-H	Input/ Output	Ignition switch ON	—
13 (Y)	3 (B)	In-vehicle sensor signal	Input	Ignition switch ON	0 – 4.8 V Output voltage varies with in-vehicle temperature
14 (G)	3 (B)	Sunload sensor signal	Input	Ignition switch ON	0 – 4.8 V Output voltage varies with sun-load amount
23 (BR)	3 (B)	Sensor ground	—	Ignition switch ON	0 – 0.1 V
31 (R)	3 (B)	CAN-L	Input/ Output	Ignition switch ON	—
33 (LG)	3 (B)	LIN	Input/ Output	Ignition switch ON	—
41 (W)	3 (B)	ACTR V	Output	Ignition switch ON	Battery voltage
44 (L)	3 (B)	INTAKE drive 1	Output	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Right after the Intake switch operation</li> </ul>	 <p>JPIIA1647GB</p>
45 (R)	3 (B)	INTAKE drive 2			
47 (BR)	3 (B)	INTAKE drive 3	Output	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Right after the intake switch operation</li> </ul>	 <p>JPIIA1647GB</p>
49 (L)	3 (B)	MODE drive 1	Output	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Right after the MODE switch operation</li> </ul>	 <p>JPIIA1647GB</p>
50 (BR)	3 (B)	MODE drive 2			
51 (L)	3 (B)	A/MIX drive 1	Output	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Right after the temperature control switch (driver side) operation</li> </ul>	 <p>JPIIA1647GB</p>
52 (W)	3 (B)	A/MIX drive 2			

# A/C AUTO AMP.

< ECU DIAGNOSIS INFORMATION >

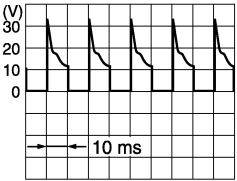
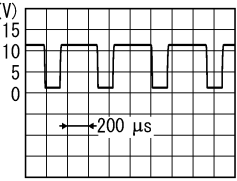
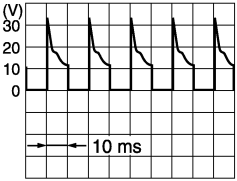
[AUTOMATIC AIR CONDITIONING]

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
59 (L)	3 (B)	A/MIX drive 1	Output	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Right after the temperature control switch (passenger side) operation</li> </ul>	 <small>JPIIA1647GB</small>
60 (BR)	3 (B)	A/MIX drive 2			
61 (G)	3 (B)	ACTR V	Output	Ignition switch ON	Battery voltage
63 (BG)	3 (B)	Intake sensor signal	Input	Ignition switch ON	0 – 4.8 V Output voltage varies with evaporator fin temperature
64 (R)	3 (B)	Blower fan ON signal	Output	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Blower motor: OFF</li> </ul>	 <small>JMIIA0941GB</small>
				<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Blower motor: ON</li> </ul>	 <small>PKIB4960J</small>
65 (W)	3 (B)	INTAKE drive 4	Output	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Right after the intake switch operation</li> </ul>	 <small>JPIIA1647GB</small>
66 (BR)	3 (B)	Sensor ground	—	Ignition switch ON	0 – 0.1 V
68 (R)	3 (B)	MODE drive 3	Output	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Right after the MODE switch operation</li> </ul>	 <small>JPIIA1647GB</small>
69 (G)	3 (B)	MODE drive 4			

# A/C AUTO AMP.

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONING]

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	–	Signal name	Input/ Output		
70 (R)	3 (B)	A/MIX drive 3	Output	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Right after the temperature control switch (driver side) operation</li> </ul>	 <p>JPIIA1647GB</p>
71 (BR)	3 (B)	A/MIX drive 4			
74 (G)	3 (B)	Power transistor control signal	Output	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Blower motor: 1st speed (manual)</li> </ul>	 <p>ZJJA0863J</p>
79 (R)	3 (B)	A/MIX drive 3	Output	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Right after the temperature control switch (passenger side) operation</li> </ul>	 <p>JPIIA1647GB</p>
80 (G)	3 (B)	A/MIX drive 4			

## Fail-safe

INFOID:0000000011379871

### FAIL-SAFE FUNCTION

If a communication error exists between the A/C auto amp. and A/C switch for 30 seconds or longer, air conditioning is controlled under the following conditions: A/C auto amp. is controlled in the setting state before the communication error occurs for following setting:

- Set temperature
- Air outlet
- Blower fan speed
- Air inlet
- A/C switch

### DTC Inspection Priority Chart

INFOID:0000000011276579

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.



# A/C AUTO AMP.

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONING]

Priority	Detected items (DTC)
1	<ul style="list-style-type: none"> <li>U1000: CAN COMM CIRCUIT</li> <li>U1010: CONTROL UNIT (CAN)</li> </ul>
2	<ul style="list-style-type: none"> <li>B24A9: SUNLOAD SEN</li> <li>B24A0: A/C AUTO AMP.</li> <li>B24A1: A/C AUTO AMP. POWER SUPPLY</li> <li>B24A4: INTAKE TEMP SEN</li> <li>B24A6: IN-VEHICLE SEN</li> <li>B24BB: LEFT AIRMIX ACTR</li> <li>B24BD: RIGHT AIRMIX ACTR</li> <li>B24B4: A/C CONTROL</li> <li>B24B6: A/C CONTROL</li> <li>B24B7: INTAKE ACTR</li> <li>B24B9: MODE ACTR</li> <li>B24C3: BLOWER MOTOR FEEDBACK</li> <li>B24C6: BLOWER MOTOR CONTROL</li> <li>B24D4: A/C CONTROL COMMUNICATION</li> </ul>

## DTC Index

INFOID:0000000011276580

DTC	Items (CONSULT screen terms)	Reference
U1000	CAN COMM CIRCUIT	<a href="#">HAC-53, "DTC Logic"</a>
U1010	CONTROL UNIT (CAN)	<a href="#">HAC-54, "DTC Logic"</a>
B24A0	A/C AUTO AMP.	<a href="#">HAC-55, "DTC Logic"</a>
B24A1	A/C AUTO AMP. POWER SUPPLY	<a href="#">HAC-56, "DTC Logic"</a>
B24A4	INTAKE SENSOR	<a href="#">HAC-58, "DTC Logic"</a>
B24A6	IN-VEHICLE SENSOR	<a href="#">HAC-61, "DTC Logic"</a>
B24A9*	SUNLOAD SENSOR	<a href="#">HAC-64, "DTC Logic"</a>
B24BB	DR AIR MIX DOOR MOT	<a href="#">HAC-67, "DTC Logic"</a>
B24BD	AS AIR MIX DOOR MOT	<a href="#">HAC-70, "DTC Logic"</a>
B24B4	A/C CONTROL	<a href="#">HAC-73, "DTC Logic"</a>
B24B6	A/C CONTROL	<a href="#">HAC-75, "DTC Logic"</a>
B24B7	INTAKE DOOR MOTOR	<a href="#">HAC-77, "DTC Logic"</a>
B24B9	MODE DOOR MOTOR	<a href="#">HAC-80, "DTC Logic"</a>
B24C3	BLOWER MOTOR FEEDBACK	<a href="#">HAC-83, "DTC Logic"</a>
B24C6	BLOWER MOTOR CONTROL	<a href="#">HAC-85, "DTC Logic"</a>
B24D4	A/C CONTROL COMM	<a href="#">HAC-89, "DTC Logic"</a>

\*: Perform self-diagnosis under direct sunlight. When performing indoors, aim a light (more than 60 W) at sunload sensor, otherwise self-diagnosis reports an error even though the sunload sensor is functioning normally.

## ECM, IPDM E/R, BCM

## List of ECU Reference

INFOID:0000000011276581

ECU	Reference
ECM	<a href="#">EC-80. "Reference Value"</a>
	<a href="#">EC-92. "Fail Safe"</a>
	<a href="#">EC-95. "DTC Inspection Priority Chart"</a>
	<a href="#">EC-96. "DTC Index"</a>
IPDM E/R	<a href="#">PCS-14. "Reference Value"</a>
	<a href="#">PCS-21. "Fail-safe"</a>
	<a href="#">PCS-22. "DTC Index"</a>
BCM (with Intelligent Key system)	<a href="#">BCS-28. "Reference Value"</a>
	<a href="#">BCS-46. "Fail Safe"</a>
	<a href="#">BCS-46. "DTC Inspection Priority Chart"</a>
	<a href="#">BCS-47. "DTC Index"</a>

# AUTOMATIC AIR CONDITIONING SYSTEM

[AUTOMATIC AIR CONDITIONING]

< WIRING DIAGRAM >

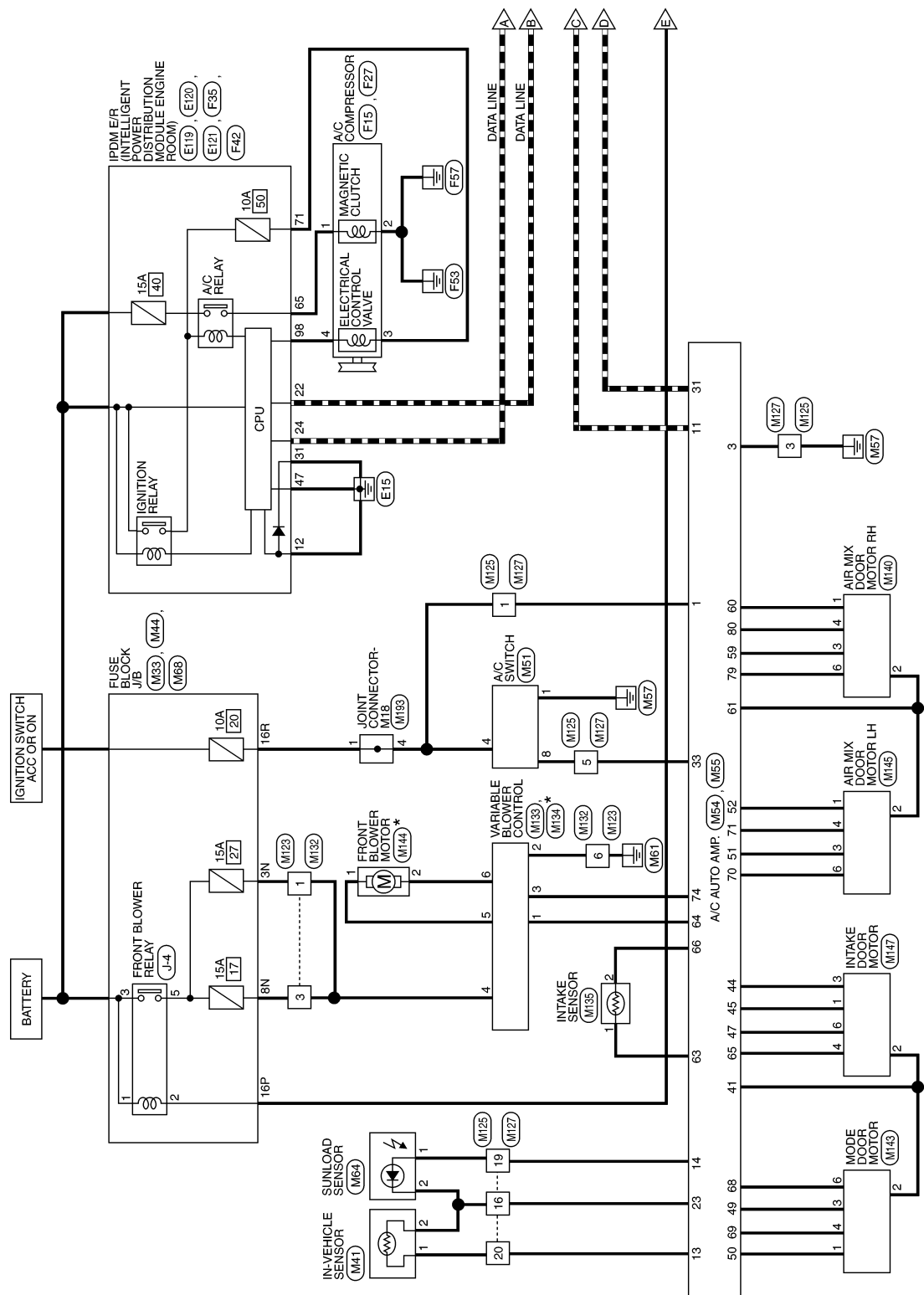
## WIRING DIAGRAM

### AUTOMATIC AIR CONDITIONING SYSTEM

#### Wiring Diagram

INFOID:0000000011276582

#### AIR CONDITIONER CONTROL - WITH AUTOMATIC



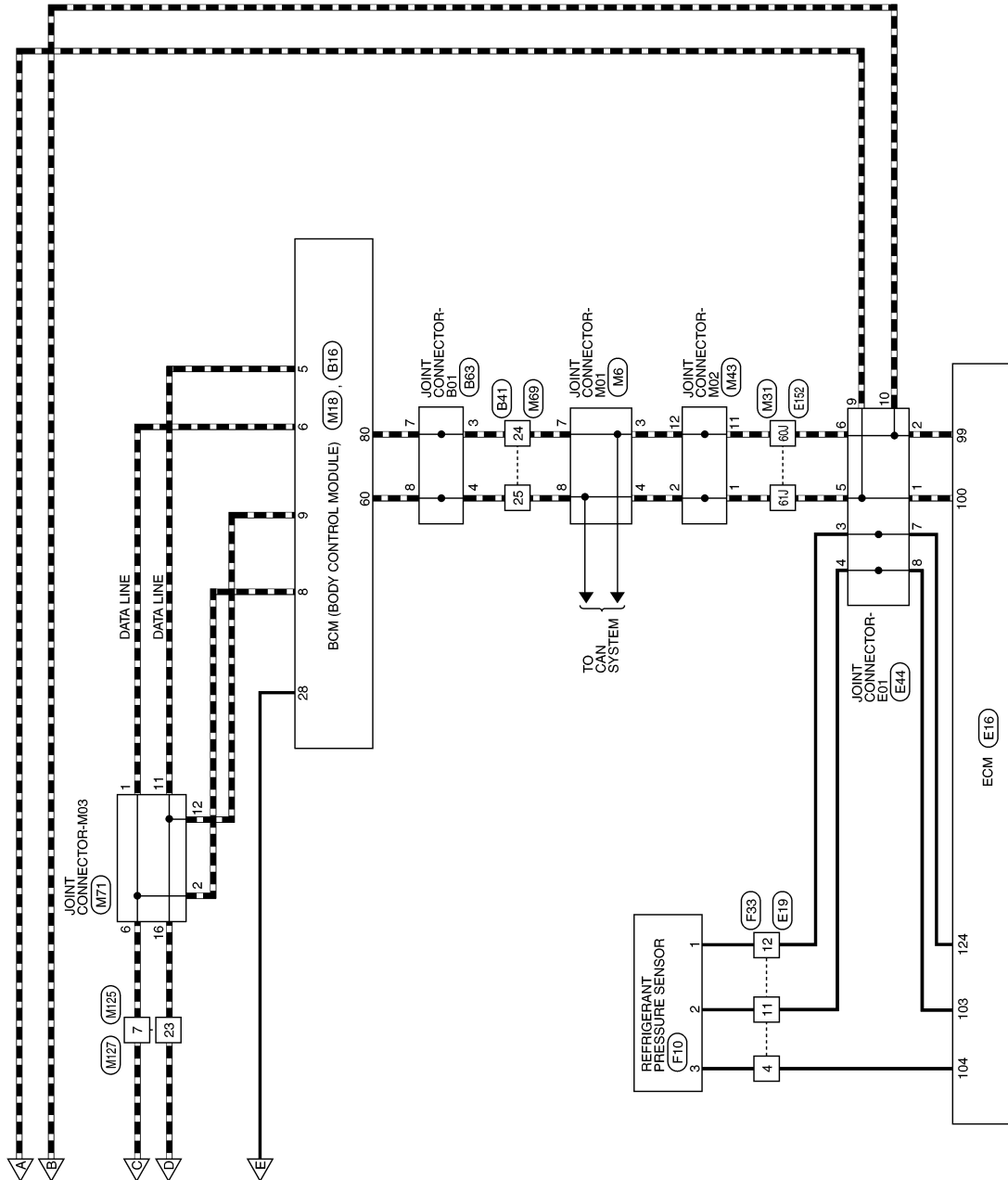
\* : THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT" OF PG SECTION.

AAIWA0219GB

# AUTOMATIC AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[AUTOMATIC AIR CONDITIONING]



AAIWA0220GB

# AUTOMATIC AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[AUTOMATIC AIR CONDITIONING]

## AIR CONDITIONER CONTROL CONNECTORS - WITH AUTOMATIC

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
5	R	CAN-L
6	L	CAN-H
8	L	CAN-H
9	R	CAN-L
28	LAW	O IGN2 RL

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



5J	4J	3J	2J	1J
10J	9J	8J	7J	6J
21J	20J	19J	18J	17J
16J	15J	14J	13J	12J
11J	10J	9J	8J	7J
6J	5J	4J	3J	2J
41J	40J	39J	38J	37J
36J	35J	34J	33J	32J
31J	30J	29J	28J	27J
26J	25J	24J	23J	22J
61J	60J	59J	58J	57J
56J	55J	54J	53J	52J
51J	70J	69J	68J	67J
66J	65J	64J	63J	62J
81J	80J	79J	78J	77J
76J	75J	74J	73J	72J
71J	90J	89J	88J	87J
86J	85J	84J	83J	82J
95J	94J	93J	92J	91J
100J	99J	98J	97J	96J

Terminal No.	Color of Wire	Signal Name
60J	P	-
61J	L	-

Connector No.	M33
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



3N	2N	1N
8N	7N	6N
5N	4N	

Terminal No.	Color of Wire	Signal Name
3N	Y	-
8N	SB	-

Connector No.	M41
Connector Name	IN-VEHICLE SENSOR
Connector Color	WHITE



1	2
---	---

Terminal No.	Color of Wire	Signal Name
1	Y	-
2	P	-

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



9	8	7	6	5	4	3	2	1
20	19	18	17	16	15	14	13	12
11	10							

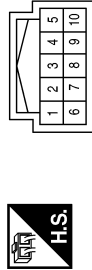
Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
11	P	-
12	P	-

# AUTOMATIC AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[AUTOMATIC AIR CONDITIONING]

Connector No.	M51
Connector Name	A/C SWITCH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	B	-
4	GR	-
8	LG	-

Terminal No.	Color of Wire	Signal Name
11	L	CAN-H
12	-	-
13	Y	INCAR SEN
14	G	SUN SEN
15	-	-
16	-	-
17	-	-
18	-	-
19	-	-
20	-	-
21	-	-
22	-	-
23	BR	SEN GND
24	-	-
25	-	-
26	-	-
27	-	-
28	-	-
29	-	-

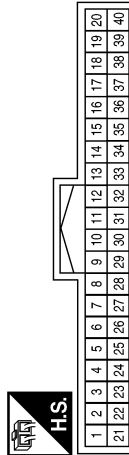
Terminal No.	Color of Wire	Signal Name
30	-	-
31	R	CAN-L
32	-	-
33	LG	LIN SW AMP
34	-	-
35	-	-
36	-	-
37	-	-
38	-	-
39	-	-
40	-	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
16P	LA/W	-

Connector No.	M54
Connector Name	A/C AUTO AMP.
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	SB	AUTO ACC
2	-	-
3	B	GND
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-

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# AUTOMATIC AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[AUTOMATIC AIR CONDITIONING]

Terminal No.	Color of Wire	Signal Name
64	R	FR FAN F/B
65	W	INTAKE4
66	BR	INTAKE SEN GND
67	—	—
68	R	MODE3
69	G	MODE4
70	R	MIX DR 3
71	BR	MIX DR 4
72	—	—
73	—	—
74	G	FR FAN OUT
75	—	—
76	—	—
77	—	—
78	—	—
79	R	MIX AS 3
80	G	MIX AS 4

Terminal No.	Color of Wire	Signal Name
48	—	—
49	L	MODE1
50	BR	MODE2
51	L	MIX DR 1
52	W	MIX DR 2
53	—	—
54	—	—
55	—	—
56	—	—
57	—	—
58	—	—
59	L	MIX AS 1
60	BR	MIX AS 2
61	G	12V PROT MOTOR34
62	—	—
63	BG	INTAKE SEN

Connector No.	M55
Connector Name	A/C AUTO AMP.
Connector Color	GRAY



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
41	W	12V PROT MOTOR 12
42	—	—
43	—	—
44	L	INTAKE1
45	R	INTAKE2
46	—	—
47	BR	INTAKE3

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
24	P	—
25	L	—

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



7R	6R	5R	4R	3R	2R	1R
16R	15R	14R	13R	12R	11R	10R
9R	8R	7R	6R	5R	4R	3R
2R	1R	—	—	—	—	—

Terminal No.	Color of Wire	Signal Name
16R	GR	—

Connector No.	M64
Connector Name	SUNLOAD SENSOR
Connector Color	BLACK



1	2
---	---

Terminal No.	Color of Wire	Signal Name
1	G	—
2	BR	—

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A  
B  
C  
D  
E  
F  
G  
H  
HAC  
J  
K  
L  
M  
N  
O  
P

# AUTOMATIC AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[AUTOMATIC AIR CONDITIONING]

Connector No.	M125
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
1	SB	-
3	B	-
5	LG	-
7	L	-
16	BR	-
19	G	-
20	Y	-
23	R	-

Connector No.	M123
Connector Name	WIRE TO WIRE
Connector Color	WHITE



6	5	4
3	2	1

Terminal No.	Color of Wire	Signal Name
1	Y	-
3	SB	-
6	B	-

Connector No.	M71
Connector Name	JOINT CONNECTOR-M03
Connector Color	BLUE



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
Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
6	L	-
11	R	-
12	R	-
16	R	-

Connector No.	M133
Connector Name	VARIABLE BLOWER CONTROL (WITH AUTO A/C)
Connector Color	GRAY



1	2	3	4
---	---	---	---

Connector No.	M132
Connector Name	WIRE TO WIRE
Connector Color	WHITE



4	5	6
1	2	3

Terminal No.	Color of Wire	Signal Name
1	Y	-
3	SB	-
6	B	-

Connector No.	M127
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
1	SB	-
3	B	-
5	LG	-
7	L	-
16	BR	-
19	G	-
20	Y	-
23	R	-

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# AUTOMATIC AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[AUTOMATIC AIR CONDITIONING]

Connector No.	M140
Connector Name	AIR MIX DOOR MOTOR RH
Connector Color	BLACK



1	4
2	5
3	6

Terminal No.	Color of Wire	Signal Name
1	BR	-
2	G	-
3	L	-
4	G	-
6	R	-

Connector No.	M135
Connector Name	INTAKE SENSOR
Connector Color	GRAY



1	2
---	---

Terminal No.	Color of Wire	Signal Name
1	BG	-
2	BR	-

Connector No.	M134
Connector Name	VARIABLE BLOWER CONTROL (WITH AUTO A/C)
Connector Color	GRAY



5	6
---	---

Terminal No.	Color of Wire	Signal Name
5	W	-
6	B	-

Connector No.	M145
Connector Name	AIR MIX DOOR MOTOR LH
Connector Color	BLACK



1	4
2	5
3	6

Terminal No.	Color of Wire	Signal Name
1	W	-
2	G	-
3	L	-
4	BR	-
6	R	-

Connector No.	M144
Connector Name	FRONT BLOWER MOTOR
Connector Color	WHITE



1	2
---	---

Terminal No.	Color of Wire	Signal Name
1	Y	-
2	R	-

Connector No.	M143
Connector Name	MODE DOOR MOTOR
Connector Color	BLACK



1	4
2	5
3	6

Terminal No.	Color of Wire	Signal Name
1	BR	-
2	W	-
3	L	-
4	G	-
6	R	-

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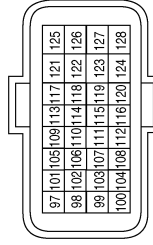
A  
B  
C  
D  
E  
F  
G  
H  
HAC  
J  
K  
L  
M  
N  
O  
P

# AUTOMATIC AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

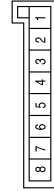
[AUTOMATIC AIR CONDITIONING]

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK



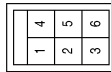
Terminal No.	Color of Wire	Signal Name
99	P	CAN-L
100	L	CAN-H
103	Y	PDPRES
104	R	AVCC1-PDPRES
124	W	GNDA-PDPRES

Connector No.	M193
Connector Name	JOINT CONNECTOR-M18
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	GR	-
4	GR	-

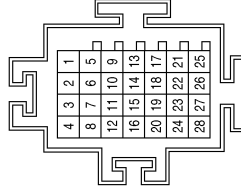
Connector No.	M147
Connector Name	INTAKE DOOR MOTOR
Connector Color	BLACK



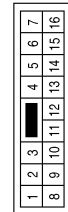
Terminal No.	Color of Wire	Signal Name
1	R	-
2	W	-
3	L	-
4	W	-
6	BR	-

Terminal No.	Color of Wire	Signal Name
1	L	-
2	P	-
3	W	-
4	Y	-
5	L	-
6	P	-
7	W	-
8	Y	-
9	L	-
10	P	-

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Connector No.	E19
Connector Name	WIRE TO WIRE
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
4	R	-
11	Y	-
12	W	-

AA1IA0407GB

# AUTOMATIC AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[AUTOMATIC AIR CONDITIONING]

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



45	44	43
48	47	46

Terminal No.	Color of Wire	Signal Name
47	B	Power Ground

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



30	29	28	27	26	25	24	23	22	21	20	19
42	41	40	39	38	37	36	35	34	33	32	31

Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
31	B	2ND SIGNAL GROUND

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



9	8	7	6	5	4	3
18	17	16	15	14	13	12
11	10					

Terminal No.	Color of Wire	Signal Name
12	B	SIGNAL GROUND

Connector No.	F15
Connector Name	A/C COMPRESSOR (ELECTRICAL CONTROL VALVE)
Connector Color	GRAY



3	4
---	---

Terminal No.	Color of Wire	Signal Name
3	SB	-
4	Y	-

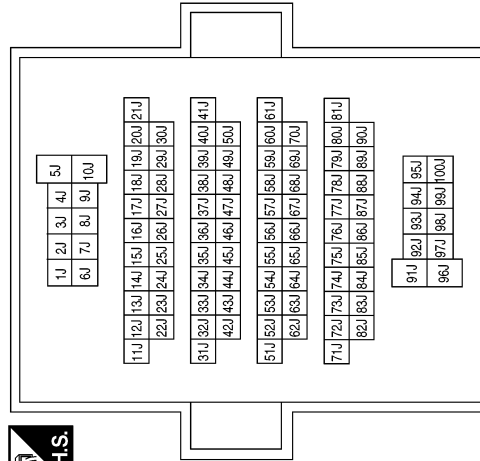
Connector No.	F10
Connector Name	REFRIGERANT PRESSURE SENSOR
Connector Color	BLACK



1	2	3
---	---	---

Terminal No.	Color of Wire	Signal Name
1	GR	-
2	P	-
3	BG	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
60J	P	-
61J	L	-

AA1IA0560GB

A  
B  
C  
D  
E  
F  
G  
H  
HAC  
J  
K  
L  
M  
N  
O  
P

# AUTOMATIC AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[AUTOMATIC AIR CONDITIONING]

Connector No.	F35
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



71	70	69	68	<div></div>	67	66	65	
80	79	78	77	76	75	74	73	72

Terminal No.	Color of Wire	Signal Name
65	P	O AC CLUTCH
71	SB	O IGN REVERSE S VALVE

Connector No.	F33
Connector Name	WIRE TO WIRE
Connector Color	BROWN



7	6	5	4	3	2	1		
16	15	14	13	12	11	10	9	8

Terminal No.	Color of Wire	Signal Name
4	BG	-
11	P	-
12	GR	-

Connector No.	F27
Connector Name	A/C COMPRESSOR (MAGNETIC CLUTCH)
Connector Color	BLACK



1	2
---	---

Terminal No.	Color of Wire	Signal Name
1	P	-
2	B	-

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

Connector No.	F42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



98	97	96	95	94	93	92	91	90	89	88	87
110	109	108	107	106	105	104	103	102	101	100	99

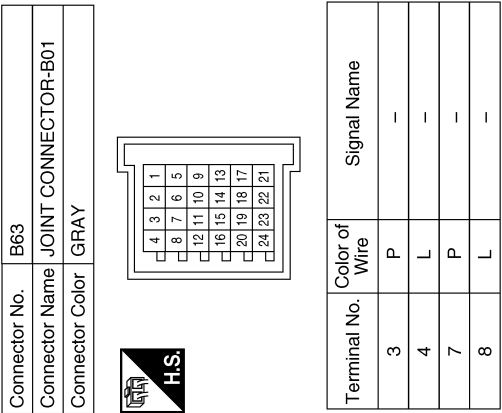
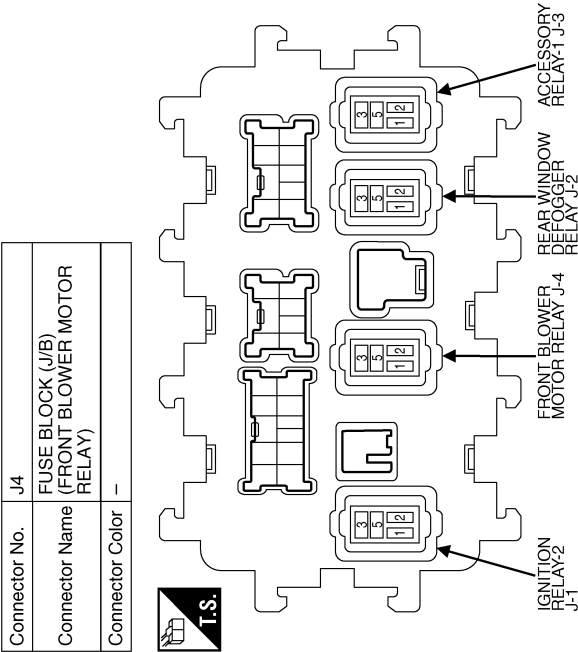
Terminal No.	Color of Wire	Signal Name
98	Y	O AC VALVE

AA1IA0417GB

AUTOMATIC AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[AUTOMATIC AIR CONDITIONING]



AA1IA0419GB

A  
B  
C  
D  
E  
F  
G  
H  
HAC  
J  
K  
L  
M  
N  
O  
P

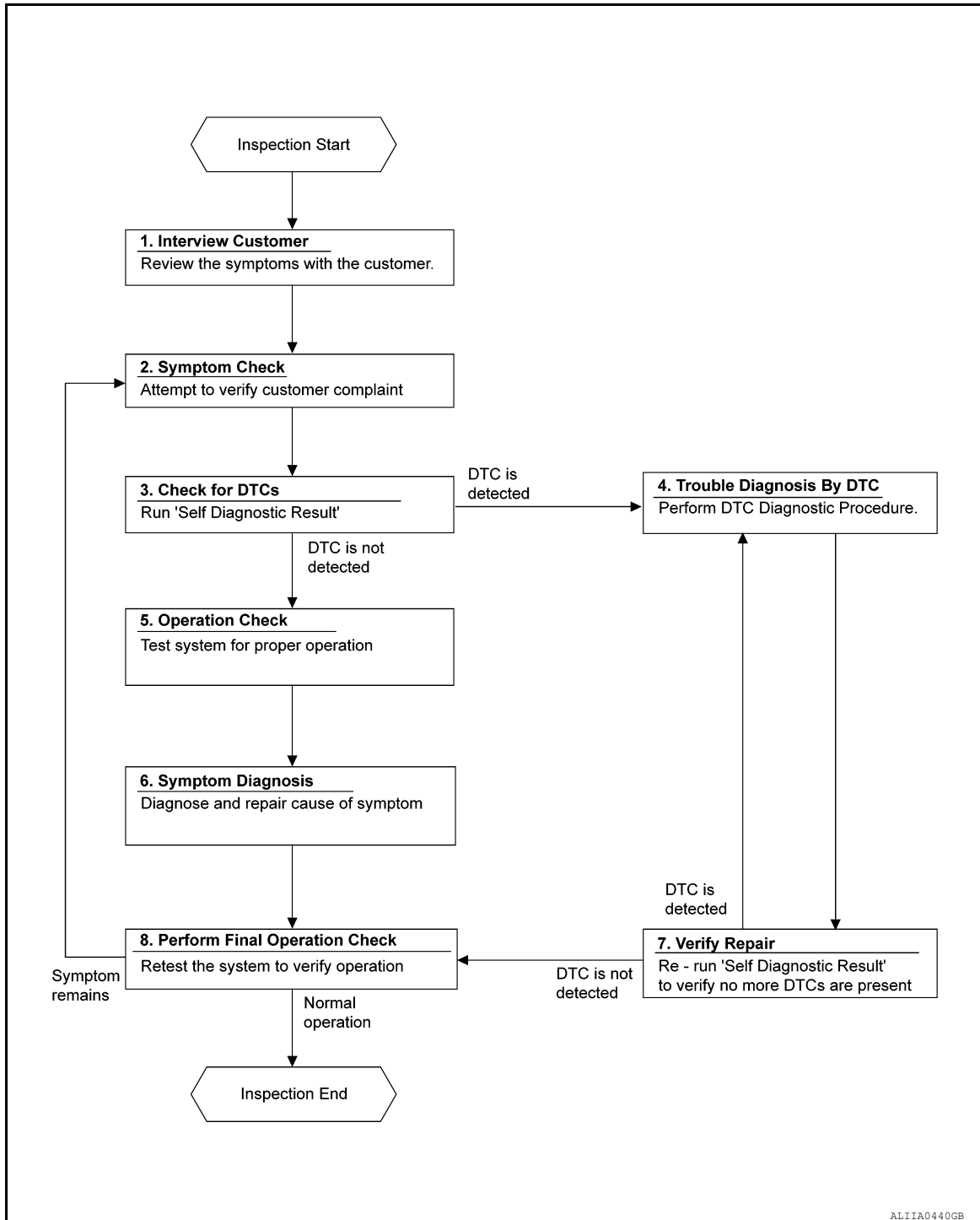
## BASIC INSPECTION

### DIAGNOSIS AND REPAIR WORKFLOW

#### Work Flow

INFOID:0000000011276583

#### OVERALL SEQUENCE



#### DETAILED FLOW

##### 1. INTERVIEW CUSTOMER

Interview the customer to obtain as much information as possible about the conditions and environment under which the malfunction occurred.

# DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONING]

>> GO TO 2.

## 2.SYMPTOM CHECK

Verify symptoms.

>> GO TO 3.

## 3.CHECK FOR DTCS

 With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" of "HVAC".
3. Check DTC.

Is any DTC detected?

YES >> GO TO 4.

NO >> GO TO 5.

## 4.TROUBLE DIAGNOSIS BY DTC

Perform the diagnostic procedure for the detected DTC. Refer to [HAC-32. "DTC Inspection Priority Chart"](#).

>> GO TO 7.

## 5.OPERATION CHECK

Perform the operation check. Refer to [HAC-48. "Work Procedure"](#).

>> GO TO 6.

## 6.SYMPTOM DIAGNOSIS

Check the symptom diagnosis table. Refer to [HAC-96. "Diagnosis Chart By Symptom"](#).

>> GO TO 8.

## 7.VERIFY REPAIR.

 With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" of "HVAC".
3. Check DTC.

Is any DTC detected?

YES >> GO TO 4.

NO >> GO TO 8.

## 8.PERFORM FINAL OPERATION CHECK

Perform the operation check. Refer to [HAC-48. "Work Procedure"](#).

Does it operate normally?

YES >> Inspection End.

NO >> GO TO 2.

A

B

C

D

E

F

G

H

HAC

J

K

L

M

N

O

P

## OPERATION INSPECTION

### Work Procedure

INFOID:0000000011276584

#### DESCRIPTION

The purpose of the operational check is to check that the individual system operates normally.

**Conditions : Engine running at normal operating temperature**

#### INSPECTION PROCEDURE

##### 1.CHECK MEMORY FUNCTION

1. Start the engine.
2. Operate the temperature control switch (driver side) and raise the temperature setting to 32°C (90°F).
3. Press the OFF switch.
4. Turn the ignition switch OFF.
5. Turn the ignition switch ON.
6. Press the AUTO switch.
7. Check that the temperature setting, before turning the ignition switch OFF, is stored.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check power and ground circuits for A/C auto amp. Refer to [HAC-56, "Diagnosis Procedure"](#).

##### 2.CHECK BLOWER MOTOR SPEED

1. Operate the fan control dial. Check that the fan speed changes.
2. Check the operation for all fan speeds.

Is the inspection result normal?




YES >> GO TO 3.

NO >> Check blower motor system. Refer to [HAC-85, "Diagnosis Procedure"](#).

##### 3.CHECK DISCHARGE AIR (MODE SWITCH AND DEF SWITCH)

1. Press the MODE switch and the DEF switch.
2. Check that the air outlets change according to each indicated air outlet by placing a hand in front of the outlets. Refer to [HAC-10, "System Description"](#).

#### NOTE:



Confirm that the A/C compressor clutch is engaged (sound or visual inspection) and intake door position is at FRE (  ) when the D/F (  ) or DEF (  ) is selected.

Is the inspection result normal?




YES >> GO TO 4.

NO >> Check mode door system. Refer to [HAC-80, "Diagnosis Procedure"](#).

##### 4.CHECK INTAKE AIR

1. Press the REC (  ) switch. Indicator is turned ON.
2. Press the FRE (  ) switch. Indicator is turned ON.
3. Listen for the intake door position change. (Slight change of blower sound can be heard.)

#### NOTE:

Confirm that the A/C compressor clutch is engaged (sound or visual inspection) and the FRE (  ) switch is pressed when the D/F (  ) or DEF (  ) is selected.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Check intake door system. Refer to [HAC-77, "Diagnosis Procedure"](#).

##### 5.CHECK A/C SWITCH

1. Press the A/C switch.
2. The A/C switch indicator is turned ON.  
Confirm that the A/C compressor clutch engages (sound or visual inspection).

Is the inspection result normal?

YES >> GO TO 6.



# OPERATION INSPECTION

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONING]

NO >> Check magnet clutch system. Refer to [HAC-91. "Diagnosis Procedure"](#).

## 6. CHECK TEMPERATURE DECREASE

1. Operate the A/C compressor.
2. Operate the temperature control dial (driver side) and lower the temperature setting to 18°C (60°F).
3. Check that the cool air blows from the outlets.

Is the inspection result normal?

YES >> GO TO 7.

NO >> Check for insufficient cooling. Refer to [HAC-98. "Diagnosis Procedure"](#).

## 7. CHECK TEMPERATURE INCREASE

1. Operate the temperature control dial (driver side) and raise the temperature setting to 32°C (90°F) after warming up the engine.
2. Check that the warm air blows from the outlets.

Is the inspection result normal?

YES >> GO TO 8.

NO >> Check for insufficient heating. Refer to [HAC-99. "Diagnosis Procedure"](#).

## 8. CHECK DUAL MODE FUNCTION

1. Press the DUAL mode switch, and then check that "DUAL" is shown on the display.
2. Operate the temperature control dial (driver side). Check that the discharge air temperature (driver side) changes.
3. Operate the temperature control dial (passenger side). Check that the discharge air temperature (passenger side) changes.
4. Press the DUAL mode switch, and then check that the temperature setting (driver/passenger) is unified to the driver side temperature setting.

Is the inspection result normal?

YES >> GO TO 9.

NO >> Refer to [HAC-96. "Diagnosis Chart By Symptom"](#) and perform the appropriate diagnosis.

## 9. CHECK AUTO MODE

1. Press the AUTO switch, and then check that "AUTO" is shown on the display.
2. Operate the temperature control dial (driver side). Check that the fan speed, outlet air or intake air changes. The discharge air temperature or fan speed varies depending on the ambient temperature, in-vehicle temperature, and temperature setting.

Is the inspection result normal?

YES >> Inspection End.

NO >> Refer to [HAC-96. "Diagnosis Chart By Symptom"](#) and perform the appropriate diagnosis.

## SYSTEM SETTING

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONING]

### SYSTEM SETTING

#### Temperature Setting Trimmer

INFOID:0000000011276585

##### Description

If the temperature felt by the customer is different than the airflow temperature controlled by the temperature setting, the auto amplifier control temperature can be adjusted to compensate for the temperature setting.

##### How to set

Using CONSULT, perform "TEMP SET CORRECT" in "Work support" of "HVAC".

Work support items	Display (°F)	Display (°C)
TEMP SET CORRECT	6	3.0
	5	2.5
	4	2.0
	3	1.5
	2	1.0
	1	0.5
	0 (initial status)	0 (initial status)
	-1	-0.5
	-2	-1.0
	-3	-1.5
	-4	-2.0
	-5	-2.5
	-6	-3.0

##### NOTE:

- When the temperature setting is set to 25.0°C (77°F) and -3.0°C (-6°F), the temperature controlled by auto amp is 25.0°C (77°F) - 3.0°C (6°F) = 22.0°C (71°F) and the temperature becomes lower than the temperature setting.
- When the battery cable is disconnected from the negative terminal or when the battery voltage becomes 10V or less, the setting of the difference between the temperature setting and control temperature may be cancelled.

#### Foot Position Setting Trimmer

INFOID:0000000011276586

##### DESCRIPTION

In FOOT mode, the air blowing to DEF can change ON/OFF.

##### HOW TO SET

Ⓔ With CONSULT

Perform "BLOW SET" in "Work support" of "HVAC".

Work support items	Display	Defroster door position	
		Auto control	Manual control
BLOW SET	Mode1	OPEN	CLOSE
	Mode2 (initial status)	OPEN	OPEN
	Mode3	CLOSE	OPEN
	Mode4	CLOSE	CLOSE

##### NOTE:

When the battery cable is disconnected from the negative terminal or when the battery voltage becomes 10 V or less, the setting of the discharge air mix ratio in FOOT mode may be cancelled.

#### Inlet Port Memory Function (FRE)




INFOID:0000000011276587

##### Description

## SYSTEM SETTING

### < BASIC INSPECTION >

### [AUTOMATIC AIR CONDITIONING]

- If the ignition switch is turned to the OFF position while the FRE (  ) switch is set to ON (fresh air intake), “Perform the memory” or “Do not perform the memory” of the FRE (  ) switch ON (fresh air intake) condition can be selected.
- If “Perform the memory” was set, the FRE (  ) switch will be ON (fresh air intake) when turning the ignition switch to the ON position again.
- If “Do not perform the memory” was set, the air inlets will be controlled automatically when turning the ignition switch to the ON position again.

#### How to set

Using CONSULT, perform “FRE MEMORY SET” in “Work support” of “HVAC”.

Work support items	Display	Setting
FRE MEMORY SET	WITHOUT	Perform the memory of manual FRE
	WITH (initial status)	Do not perform the memory of manual FRE (auto control)




#### NOTE:

When the battery cable is disconnected from the negative terminal or when the battery voltage becomes 10V or less, the setting of the FRE switch memory function may be cancelled.

### Inlet Port Memory Function (REC)

INFOID:0000000011276588

#### Description

- If the ignition switch is turned to the OFF position while the REC (  ) switch is set to ON (recirculation), “Perform the memory” or “Do not perform the memory” of the REC (  ) switch ON (recirculation) condition can be selected.
- If “Perform the memory” was set, the REC (  ) switch will be ON (recirculation) when turning the ignition switch to the ON position again.
- If “Do not perform the memory” was set, the air inlets will be controlled automatically when turning the ignition switch to the ON position again.

#### How to set

Using CONSULT, perform “REC MEMORY SET” in “Work support” of “HVAC”.

Work support items	Display	Setting
REC MEMORY SET	WITHOUT (initial status)	Perform the memory of manual REC
	WITH	Do not perform the memory of manual REC (auto control)

#### NOTE:

When the battery cable is disconnected from the negative terminal or when the battery voltage becomes 10V or less, the setting of the REC switch memory function may be cancelled.

### Target Evaporator Temp Upper Limit

INFOID:0000000011276589

#### DESCRIPTION

Set the target evaporator temperature upper limit.

#### HOW TO SET

 With CONSULT

Perform the “TARGET EVAPORATOR TEMP UPPER LIMIT SETTING” in “Work support” of “HVAC”.

Work support items	Display
TARGET EVAPORATOR TEMP UPPER LIMIT SETTING	Initial Setting
	Low
	Middle
	High

## DOOR MOTOR STARTING POSITION RESET

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONING]

### DOOR MOTOR STARTING POSITION RESET

---

#### Description

INFOID:0000000011276590

- Reset signal is transmitted from A/C auto amp. to air mix door motor, intake door motor and mode door motor. Starting position reset can be performed.

**NOTE:**

During reset, DEF switch indicator blinks.

- When air mix door motor, intake door motor or mode door motor is removed and installed, always perform door motor starting position reset.

#### Work Procedure

INFOID:0000000011276591

#### 1. PERFORM DOOR MOTOR STARTING POSITION RESET

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⑧ With CONSULT

1. Turn ignition switch ON.
2. Select "Door Motor Starting Position Reset" in "Active Test" of "HVAC".
3. Touch "Start" and wait a few seconds.
4. Make sure the "COMPLETED" is displayed on CONSULT screen.

>> Inspection End.

## DTC/CIRCUIT DIAGNOSIS

### U1000 CAN COMM CIRCUIT

#### Description

INFOID:0000000011276592

CAN (Controller Area Network) is a serial communication system for real time application. It is an on-vehicle multiplex communication system with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto vehicles, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with two communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only. Refer to [LAN-32, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"](#).

#### DTC Logic

INFOID:0000000011276593

#### DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
U1000	CAN COMM CIRCUIT	When A/C auto amp. is not transmitting or receiving CAN communication signal for 2 or more seconds.	CAN communication system

#### DTC CONFIRMATION PROCEDURE

##### 1.PERFORM SELF-DIAGNOSIS

###### With CONSULT

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform "Self Diagnostic Result" of "HVAC".
3. Check if any DTC No. is displayed in the self-diagnosis results.

###### Is DTC detected?

- YES >> Refer to [HAC-53, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

#### Diagnosis Procedure

INFOID:0000000011276594

##### 1.CHECK CAN COMMUNICATION SYSTEM

Check CAN communication system. Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

>> Inspection End.

# U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

## U1010 CONTROL UNIT (CAN)

### Description

INFOID:0000000011276595

Initial diagnosis of A/C auto amp.

### DTC Logic

INFOID:0000000011276596

### DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
U1010	CONTROL UNIT (CAN)	When detecting error during the initial diagnosis of CAN controller of A/C auto amp.	A/C auto amp.

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM SELF-DIAGNOSIS

Ⓔ With CONSULT

1. Turn ignition switch ON.
2. Perform "Self Diagnostic Result" of "HVAC".
3. Check if any DTC No. is displayed in the self-diagnosis results.

Is DTC detected?

- YES >> Refer to [HAC-54, "Diagnosis Procedure"](#).  
NO >> Inspection End.

### Diagnosis Procedure

INFOID:0000000011276597

#### NOTE:

This DTC can be set if the BCM is placed in transit mode. Confirm if the DTC is CURRENT or PAST. If PAST, perform the following steps before carrying out Diagnosis Procedure.

1. Clear DTC using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
2. Perform OPERATION INSPECTION. Refer to [HAC-48, "Work Procedure"](#).
3. Perform "Self Diagnostic Result" of "HVAC" using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
4. If DTC resets, proceed with Diagnosis Procedure.

#### 1.REPLACE A/C AUTO AMP.

Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).

>> Inspection End.

## B24A0 A/C AUTO AMP.

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

### B24A0 A/C AUTO AMP.

#### DTC Logic

INFOID:0000000011276598

#### DTC DETECTION LOGIC

##### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [HAC-53, "DTC Logic"](#).
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [HAC-54, "DTC Logic"](#).

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24A0	A/C AUTO AMP.	A/C auto amp. EEPROM system is malfunctioning.	A/C auto amp.

#### DTC CONFIRMATION PROCEDURE

##### 1.PERFORM DTC CONFIRMATION PROCEDURE

###### With CONSULT

1. Turn ignition switch ON.
2. Perform "Self Diagnostic Result" of "HVAC".
3. Check if any DTC No. is displayed in the self-diagnosis results.

###### Is DTC detected?

- YES >> Refer to [HAC-55, "Diagnosis Procedure"](#).  
NO >> Inspection End.

#### Diagnosis Procedure

INFOID:0000000011276599

##### 1.PERFORM SELF DIAGNOSTIC

###### With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" of "HVAC".
3. Touch "ERASE".
4. Turn ignition switch OFF.
5. Turn ignition switch ON.
6. Perform "DTC CONFIRMATION PROCEDURE". Refer to [HAC-55, "DTC Logic"](#).

###### Is DTC detected again?

- YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).  
NO >> Inspection End.

## B24A1 A/C AUTO AMP. POWER SUPPLY

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

### B24A1 A/C AUTO AMP. POWER SUPPLY

#### DTC Logic

INFOID:0000000011276600

#### DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24A1	A/C AUTO AMP. POWER SUPPLY	A/C auto amp. power supply is out of range	<ul style="list-style-type: none"><li>A/C auto amp.</li><li>Harness and connector (Power supply is open or shorted)</li></ul>

#### DTC CONFIRMATION PROCEDURE

##### 1.PERFORM DTC CONFIRMATION PROCEDURE

 With CONSULT

- Turn ignition switch ON.
- Perform "Self Diagnostic Result" of "HVAC".
- Check if any DTC No. is displayed in the self-diagnosis results.

Is DTC detected?

- YES >> Refer to [HAC-56, "Diagnosis Procedure"](#).  
NO >> Inspection End.

#### Diagnosis Procedure

INFOID:0000000011276601

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

##### 1.CHECK FUSE

Check 10A fuse [No. 20, located in the fuse block (J/B)].

**NOTE:**

Refer to [PG-64, "Terminal Arrangement"](#).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the blown fuse after repairing the affected circuit.

##### 2.CHECK A/C AUTO AMP. POWER SUPPLY

- Turn ignition switch OFF.
- Disconnect A/C auto amp. connector.
- Check voltage between A/C auto amp. harness connector and ground.

+		–	Voltage		
A/C auto amp.			Ignition switch position		
Connector	Terminal		OFF	ACC	ON
M54	1	Ground	Approx. 0 V	Approx. 0 V	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair harness or connector between A/C auto amp. and fuse block (J/B).

##### 3.CHECK A/C AUTO AMP. GROUND CIRCUIT

- Turn ignition switch OFF.
- Check continuity between A/C auto amp. harness connector and ground.



## B24A1 A/C AUTO AMP. POWER SUPPLY

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

A/C auto amp.		—	Continuity
Connector	Terminal		
M54	3	Ground	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair harness or connector.

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## B24A4 INTAKE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

### B24A4 INTAKE SENSOR

#### DTC Logic

INFOID:0000000011276602

#### DTC DETECTION LOGIC

##### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [HAC-53, "DTC Logic"](#).
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [HAC-54, "DTC Logic"](#).

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24A4	INTAKE SENSOR	The intake sensor recognition temperature is too high.	<ul style="list-style-type: none"><li>• Intake sensor</li><li>• A/C auto amp.</li><li>• Harness or connectors (The sensor circuit is open or shorted.)</li></ul>
		The intake sensor recognition temperature is too low.	

#### DTC CONFIRMATION PROCEDURE

##### 1.PERFORM DTC CONFIRMATION PROCEDURE

###### With CONSULT

1. Turn ignition switch ON.
2. Perform "Self Diagnostic Result" of "HVAC".
3. Check if any DTC No. is displayed in the self-diagnosis results.

###### Is DTC detected?

- YES >> Refer to [HAC-58, "Diagnosis Procedure"](#).  
NO >> Inspection End.

#### Diagnosis Procedure

INFOID:0000000011276603

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

##### 1.CHECK INTAKE SENSOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect intake sensor connector.
3. Turn ignition switch ON.
4. Check voltage between intake sensor harness connector and ground.

+		-	Voltage (Approx.)
Intake sensor			
Connector	Terminal		
M135	1	Ground	5 V

###### Is the inspection result normal?

- YES >> GO TO 2.  
NO >> GO TO 4.

##### 2.CHECK INTAKE SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between intake sensor harness connector and ground.

## B24A4 INTAKE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Intake sensor		—	Continuity
Connector	Terminal		
M135	2	Ground	Yes

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

### 3.CHECK INTAKE SENSOR

Check intake sensor. Refer to [HAC-59, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).

NO >> Replace intake sensor. Refer to [HAC-107, "Removal and Installation"](#).

### 4.CHECK INTAKE SENSOR POWER SUPPLY CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Check continuity between intake sensor harness connector and A/C auto amp. harness connector.

Intake sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M135	1	M55	63	Yes

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

### 5.CHECK INTAKE SENSOR POWER SUPPLY CIRCUIT FOR SHORT TO GROUND

Check continuity between intake sensor harness connector and ground.

Intake sensor		—	Continuity
Connector	Terminal		
M135	1	Ground	No

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair harness or connector.

### 6.CHECK INTAKE SENSOR POWER SUPPLY CIRCUIT FOR SHORT TO VOLTAGE

1. Turn ignition switch ON.
2. Check voltage between intake sensor harness connector and ground.

+		—	Voltage (Approx.)
Intake sensor			
Connector	Terminal		
M135	1	Ground	0 V

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).

NO >> Repair harness or connector.

## Component Inspection

INFOID:0000000011276604

### 1.CHECK INTAKE SENSOR

1. Turn ignition switch OFF.
2. Disconnect intake sensor connector.

## B24A4 INTAKE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

3. Check resistance between intake sensor terminals.

Terminal		Condition	Resistance: kΩ
		Temperature: °C (°F)	
1	2	-15 (5)	17.73
		-10 (14)	13.46
		-5 (23)	10.33
		0 (32)	8.00
		5 (41)	6.25
		10 (50)	4.93
		15 (59)	3.92
		20 (68)	3.14
		25 (77)	2.54
		30 (86)	2.06
		35 (95)	1.69
		40 (104)	1.39
		45 (113)	1.15

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace intake sensor. Refer to [HAC-107. "Removal and Installation"](#).

## B24A6 IN-VEHICLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

### B24A6 IN-VEHICLE SENSOR

#### DTC Logic

INFOID:0000000011276605

#### DTC DETECTION LOGIC

##### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [HAC-53, "DTC Logic"](#).
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [HAC-54, "DTC Logic"](#).

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24A6	IN-VEHICLE SENSOR	The in-vehicle sensor recognition temperature is too high.	<ul style="list-style-type: none"><li>• In-vehicle sensor</li><li>• A/C auto amp.</li><li>• Harness or connectors (The sensor circuit is open or shorted.)</li></ul>
		The in-vehicle sensor recognition temperature is too low.	

#### DTC CONFIRMATION PROCEDURE

##### 1.PERFORM DTC CONFIRMATION PROCEDURE

###### With CONSULT

1. Turn ignition switch ON.
2. Perform "Self Diagnostic Result" of "HVAC".
3. Check if any DTC No. is displayed in the self-diagnosis results.

###### Is DTC detected?

- YES >> Refer to [HAC-61, "Diagnosis Procedure"](#).  
NO >> Inspection End.

#### Diagnosis Procedure

INFOID:0000000011276606

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

##### 1.CHECK IN-VEHICLE SENSOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect in-vehicle sensor connector.
3. Turn ignition switch ON.
4. Check voltage between in-vehicle sensor harness connector and ground.

+		-	Voltage (Approx.)
In-vehicle sensor			
Connector	Terminal		
M41	1	Ground	5 V

###### Is the inspection result normal?

- YES >> GO TO 2.  
NO >> GO TO 4.

##### 2.CHECK CONTINUITY BETWEEN IN-VEHICLE SENSOR AND A/C AUTO AMP.

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Check continuity between in-vehicle sensor harness connector and A/C auto amp. harness connector.

## B24A6 IN-VEHICLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

In-vehicle sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M41	2	M54	23	Yes

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

### 3.CHECK IN-VEHICLE SENSOR

Check in-vehicle sensor. Refer to [HAC-62, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).

NO >> Replace in-vehicle sensor. Refer to [HAC-105, "Removal and Installation"](#).

### 4.CHECK IN-VEHICLE SENSOR POWER SUPPLY CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Check continuity between in-vehicle sensor harness connector and A/C auto amp. harness connector.

In-vehicle sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M41	1	M54	13	Yes

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

### 5.CHECK IN-VEHICLE SENSOR POWER SUPPLY CIRCUIT FOR GROUND SHORT

Check continuity between in-vehicle sensor harness connector and ground.

In-vehicle sensor		—	Continuity
Connector	Terminal		
M41	1	Ground	No

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair harness or connector.

### 6.CHECK IN-VEHICLE SENSOR POWER SUPPLY CIRCUIT FOR POWER SHORT

1. Turn ignition switch ON.
2. Check voltage between in-vehicle sensor harness connector and ground.

+		—	Voltage (Approx.)
In-vehicle sensor			
Connector	Terminal		
M41	1	Ground	0 V

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).

NO >> Repair harness or connector.

## Component Inspection

INFOID:0000000011276607

### 1.CHECK IN-VEHICLE SENSOR

1. Turn ignition switch OFF.
2. Disconnect in-vehicle sensor connector.

## B24A6 IN-VEHICLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

3. Check resistance between in-vehicle sensor terminals.

Terminal		Condition	Resistance: k $\Omega$
		Temperature: °C (°F)	
1	2	-15 (5)	12.73
		-10 (14)	9.92
		-5 (23)	7.80
		0 (32)	6.19
		5 (41)	4.95
		10 (50)	3.99
		15 (59)	3.24
		20 (68)	2.65
		25 (77)	2.19
		30 (86)	1.81
		35 (95)	1.51
		40 (104)	1.27
		45 (113)	1.07

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace in-vehicle sensor. Refer to [HAC-105. "Removal and Installation"](#).

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## B24A9 SUNLOAD SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

### B24A9 SUNLOAD SENSOR

#### DTC Logic

INFOID:0000000011276608

#### DTC DETECTION LOGIC

##### NOTE:

- If DTC is displayed along with DTC U1000 or U1010, first diagnose the DTC U1000 or U1010. Refer to [HAC-53, "DTC Logic"](#) (U1000) or [HAC-54, "DTC Logic"](#) (U1010).
- Sunload sensor may register a malfunction when indoors, at dusk, or at other times when light is insufficient. When performing the diagnosis indoors, light the sunload sensor with a lamp (60W or more).

DTC	Items (CONSULT screen terms)	Diagnostic item is detected when...	Possible cause
B24A9	SUNLOAD SEN (SHORT)	Detected calorie at sunload sensor 1677 w/m <sup>2</sup> (1442 kcal/m <sup>2</sup> ·h) or more	<ul style="list-style-type: none"><li>• Sunload sensor</li><li>• A/C auto amp.</li><li>• Harness and connector (Sunload sensor circuit is open, or there is a short in the circuit)</li></ul>
	SUNLOAD SEN (OPEN)	Detected calorie at sunload sensor 33 w/m <sup>2</sup> (28 kcal/m <sup>2</sup> ·h)	

#### DTC CONFIRMATION PROCEDURE

##### 1.CHECK WITH SELF-DIAGNOSIS FUNCTION OF CONSULT

1. Using CONSULT, perform "Self Diagnostic Result" of "HVAC".
2. Check if any DTC No. is displayed in the self-diagnosis results.

##### NOTE:

- If DTC is displayed along with DTC U1000 or U1010, first diagnose the DTC U1000 or U1010. Refer to [HAC-53, "DTC Logic"](#) (U1000) or [HAC-54, "DTC Logic"](#) (U1010).
- Sunload sensor may register a malfunction when indoors, at dusk, or at other times when light is insufficient. When performing the diagnosis indoors, light the sunload sensor with a lamp (60W or more).

##### Is DTC No."B24A9" displayed?

- YES >> Perform trouble diagnosis for the sunload sensor. Refer to [HAC-64, "Diagnosis Procedure"](#).  
NO >> Inspection End.

#### Diagnosis Procedure

INFOID:0000000011276609

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

##### NOTE:

This DTC can be set if the BCM is placed in transit mode. Confirm if the DTC is CURRENT or PAST. If PAST, perform the following steps before carrying out Diagnosis Procedure.

1. Clear DTC using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
2. Perform OPERATION INSPECTION. Refer to [HAC-48, "Work Procedure"](#).
3. Perform "Self Diagnostic Result" of "HVAC" using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
4. If DTC resets, proceed with Diagnosis Procedure.

##### 1.CHECK SUNLOAD SENSOR POWER SUPPLY

1. Disconnect sunload sensor connector.
2. Turn ignition switch ON.
3. Check voltage between sunload sensor harness connector and ground.

+		-	Voltage (Approx.)
Sunload sensor			
Connector	Terminal		
M64	1	Ground	5 V



## B24A9 SUNLOAD SENSOR

[AUTOMATIC AIR CONDITIONING]

### < DTC/CIRCUIT DIAGNOSIS >

#### Is the inspection result normal?

- YES >> GO TO 2.  
NO >> GO TO 4.

### 2.CHECK CONTINUITY BETWEEN SUNLOAD SENSOR AND A/C AUTO AMP.

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Check continuity between sunload sensor harness connector and A/C auto amp. harness connector.

Sunload sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M64	2	M54	23	Yes

#### Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair harness or connector.

### 3.CHECK SUNLOAD SENSOR

1. Reconnect sunload sensor connector and A/C auto amp. connector.
2. Check sunload sensor. Refer to [HAC-65, "Component Inspection"](#).

#### Is the inspection result normal?

- YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).  
NO >> Replace sunload sensor. Refer to [HAC-106, "Removal and Installation"](#).

### 4.CHECK CONTINUITY BETWEEN SUNLOAD SENSOR AND A/C AUTO AMP.

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Check continuity between sunload sensor harness connector and A/C auto amp. harness connector.

Sunload sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M64	1	M54	14	Yes

4. Check continuity between sunload sensor harness connector and ground.

Sunload sensor		—	Continuity
Connector	Terminal		
M64	1	Ground	No

#### Is the inspection result normal?

- YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).  
NO >> Repair harness or connector.

## Component Inspection

INFOID:0000000011276610

### 1.CHECK SUNLOAD SENSOR

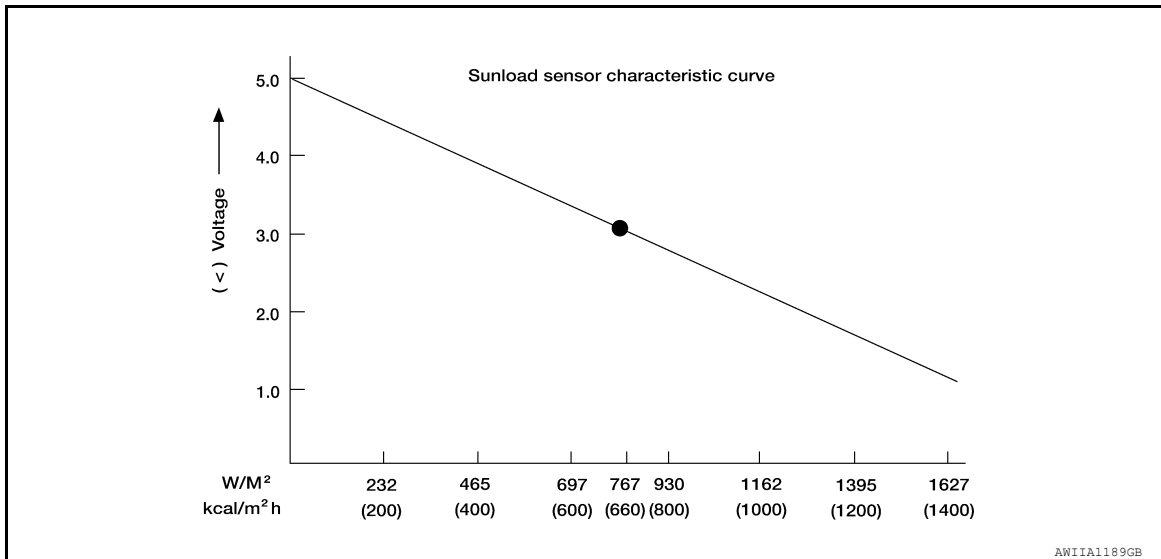
1. Turn ignition switch ON.
2. Check voltage between A/C auto amp. harness connector and ground.

(+) (–)		—
A/C auto amp.		
Connector	Terminal	Ground
M54	14	

## B24A9 SUNLOAD SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]



**NOTE:**

Select a place in direct sunlight when checking sunload sensor.

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace sunload sensor. Refer to [HAC-106, "Removal and Installation"](#).

## B24BB LEFT AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

### B24BB LEFT AIR MIX DOOR MOTOR

#### DTC Logic

INFOID:0000000011276611

#### DTC DETECTION LOGIC

##### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [HAC-53, "DTC Logic"](#).
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. [HAC-54, "DTC Logic"](#).
- If air mix door motors DTC (B24BB – B24BD) are detected, there is probably a disconnected connector or an open circuit in air mix door motor drive power supply harness.

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24BB	DR AIR MIX DOOR MOT	Short or open circuit of air mix door motor drive signal.	<ul style="list-style-type: none"><li>• Air mix door motor</li><li>• A/C auto amp.</li><li>• Harness or connectors (The motor circuit is open or shorted.)</li></ul>

#### DTC CONFIRMATION PROCEDURE

##### 1.PERFORM DTC CONFIRMATION PROCEDURE

##### ⓂWith CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" of "HVAC".
3. Check DTC.

##### Is DTC detected?

- YES >> Refer to [HAC-70, "Diagnosis Procedure"](#).  
NO >> Inspection End.

#### Diagnosis Procedure

INFOID:0000000011276612

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

##### 1.CHECK AIR MIX DOOR MOTOR LH POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect air mix door motor LH connector.
3. Turn ignition switch ON.
4. Check voltage between air mix door motor LH harness connector and ground.

+		-	Voltage (Approx.)
Air mix door motor LH			
Connector	Terminal		
M145	2	Ground	Battery voltage

##### Is the inspection result normal?

- YES >> GO TO 3.  
NO >> GO TO 2.

##### 2.CHECK AIR MIX DOOR MOTOR LH POWER SUPPLY CIRCUIT FOR OPEN

1. Disconnect A/C auto amp. connector.
2. Check continuity between air mix door motor LH harness connector and A/C auto amp. harness connector.

## B24BB LEFT AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Air mix door motor LH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M145	2	M55	61	Yes

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to [HAC-103. "Removal and Installation"](#).

NO >> Repair harness or connector.

### 3. CHECK AIR MIX DOOR MOTOR LH DRIVE SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Check continuity between air mix door motor LH harness connector and A/C auto amp. harness connector.

Air mix door motor LH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M145	1	M55	52	Yes
	3		51	
	4		71	
	6		70	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

### 4. CHECK AIR MIX DOOR MOTOR LH DRIVE SIGNAL CIRCUIT FOR SHORT

Check continuity between air mix door motor LH harness connector and A/C auto amp. harness connector.

Air mix door motor LH		—	Continuity
Connector	Terminal		
M145	1	Ground	No
	3		
	4		
	6		

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

### 5. CHECK AIR MIX DOOR MOTOR LH

Check air mix door motor LH. Refer to [HAC-71. "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to [HAC-103. "Removal and Installation"](#).

NO >> Replace air mix door motor LH. Refer to [HAC-110. "AIR MIX DOOR MOTOR : Removal and Installation"](#).

## Component Inspection

INFOID:0000000011276613

### 1. CHECK AIR MIX DOOR MOTOR LH

1. Remove air mix door motor LH. Refer to [HAC-110. "AIR MIX DOOR MOTOR : Removal and Installation"](#).
2. Check resistance between air mix door motor LH terminals. Refer to applicable table for the normal value.

## B24BB LEFT AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Terminal		Resistance (Ω) (Approx.)
2	1	90
	3	
	4	
	6	

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace air mix door motor LH. Refer to [HAC-110, "AIR MIX DOOR MOTOR : Removal and Installation"](#).

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# B24BD RIGHT AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

## B24BD RIGHT AIR MIX DOOR MOTOR

### DTC Logic

INFOID:0000000011276614

#### DTC DETECTION LOGIC

##### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [HAC-53, "DTC Logic"](#).
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. [HAC-54, "DTC Logic"](#).
- If air mix door motors DTC (B24BB – B24BD) are detected, there is probably a disconnected connector or an open circuit in air mix door motor drive power supply harness.

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24BD	AS AIR MIX DOOR MOT	Short or open circuit of air mix door motor drive signal.	<ul style="list-style-type: none"><li>• Air mix door motor</li><li>• A/C auto amp.</li><li>• Harness or connectors (The motor circuit is open or shorted.)</li></ul>

#### DTC CONFIRMATION PROCEDURE

### 1.PERFORM DTC CONFIRMATION PROCEDURE

##### Ⓔ With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" of "HVAC".
3. Check DTC.

##### Is DTC detected?

- YES >> Refer to [HAC-70, "Diagnosis Procedure"](#).  
NO >> Inspection End.

### Diagnosis Procedure

INFOID:0000000011276615

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

### 1.CHECK AIR MIX DOOR MOTOR RH POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect air mix door motor RH connector.
3. Turn ignition switch ON.
4. Check voltage between air mix door motor RH harness connector and ground.

+		-	Voltage (Approx.)
Air mix door motor RH			
Connector	Terminal		
M140	2	Ground	Battery voltage

##### Is the inspection result normal?

- YES >> GO TO 3.  
NO >> GO TO 2.

### 2.CHECK AIR MIX DOOR MOTOR RH POWER SUPPLY CIRCUIT FOR OPEN

1. Disconnect A/C auto amp. connector.
2. Check continuity between air mix door motor RH harness connector and A/C auto amp. harness connector.

# B24BD RIGHT AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Air mix door motor RH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M140	2	M55	61	Yes

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to [HAC-103. "Removal and Installation"](#).

NO >> Repair harness or connector.

## 3.CHECK AIR MIX DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Check continuity between air mix door motor RH harness connector and A/C auto amp. harness connector.

Air mix door motor RH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M140	1	M55	60	Yes
	3		59	
	4		80	
	6		79	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

## 4.CHECK AIR MIX DOOR MOTOR RH DRIVE SIGNAL CIRCUIT FOR SHORT

Check continuity between air mix door motor RH harness connector and A/C auto amp. harness connector.

Air mix door motor RH		—	Continuity
Connector	Terminal		
M140	1	Ground	No
	3		
	4		
	6		

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

## 5.CHECK AIR MIX DOOR MOTOR RH

Check air mix door motor RH. Refer to [HAC-71. "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to [HAC-103. "Removal and Installation"](#).

NO >> Replace air mix door motor RH. Refer to [HAC-110. "AIR MIX DOOR MOTOR : Removal and Installation"](#).

## Component Inspection

INFOID:0000000011276616

### 1.CHECK AIR MIX DOOR MOTOR RH

1. Remove air mix door motor RH. Refer to [HAC-110. "AIR MIX DOOR MOTOR : Removal and Installation"](#).
2. Check resistance between air mix door motor RH terminals. Refer to applicable table for the normal value.

## B24BD RIGHT AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Terminal		Resistance (Ω) (Approx.)
2	1	90
	3	
	4	
	6	

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace air mix door motor RH. Refer to [HAC-110, "AIR MIX DOOR MOTOR : Removal and Installation"](#).



# B24B4 A/C CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

## B24B4 A/C CONTROL

### DTC Logic

INFOID:0000000011276617

### DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24B4	A/C CONTROL COMM	When A/C auto amp. is not transmitting or receiving communication signal for 2 or more seconds.	<ul style="list-style-type: none"><li>A/C switch</li><li>A/C auto amp.</li><li>Harness and connector (Communication line is open or shorted)</li></ul>

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

##### With CONSULT

- Turn ignition switch ON.
- Perform "Self Diagnostic Result" of "HVAC".
- Check if any DTC No. is displayed in the self-diagnosis results.

##### Is DTC detected?

- YES >> Refer to [HAC-73, "Diagnosis Procedure"](#).  
NO >> Inspection End.

### Diagnosis Procedure

INFOID:0000000011276618

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

#### 1.CHECK WITH SELF-DIAGNOSIS FUNCTION OF CONSULT

- Using CONSULT, perform "Self Diagnostic Result" of "HVAC".
- Check if any DTC No. is displayed in the self-diagnosis results.

##### NOTE:

If DTC is displayed along with DTC U1000 or U1010, first diagnose the DTC U1000 or U1010. Refer to [HAC-53, "DTC Logic"](#) (U1000) or [HAC-54, "DTC Logic"](#) (U1010).

##### Is any DTC No. displayed?

- YES >> Perform diagnosis for the applicable DTC. Refer to [HAC-33, "DTC Index"](#).  
NO >> GO TO 2.

#### 2.CHECK A/C SWITCH COMMUNICATION CIRCUIT CONTINUITY

- Turn ignition switch OFF.
- Disconnect the A/C switch and the A/C auto amp. connectors.
- Check continuity between A/C switch harness connector and A/C auto amp. harness connector.

A/C switch		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M51	8	M54	33	Yes

- Check continuity between A/C switch harness connector and ground.

A/C switch		—	Continuity
Connector	Terminal		
M51	8	Ground	No

##### Is the inspection result normal?

## B24B4 A/C CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

---

YES >> Replace A/C switch. Refer to [HAC-102. "Removal and Installation"](#).  
NO >> Repair harness or connector.

# B24B6 A/C CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

## B24B6 A/C CONTROL

### DTC Logic

INFOID:0000000011276619

### DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24B6	A/C CONTROL COMM	When A/C auto amp. is not transmitting or receiving communication signal for 2 or more seconds.	<ul style="list-style-type: none"><li>A/C switch</li><li>A/C auto amp.</li><li>Harness and connector (Communication line is open or shorted)</li></ul>

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

##### With CONSULT

- Turn ignition switch ON.
- Perform "Self Diagnostic Result" of "HVAC".
- Check if any DTC No. is displayed in the self-diagnosis results.

##### Is DTC detected?

- YES >> Refer to [HAC-75, "Diagnosis Procedure"](#).  
NO >> Inspection End.

### Diagnosis Procedure

INFOID:0000000011276620

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

#### 1.CHECK WITH SELF-DIAGNOSIS FUNCTION OF CONSULT

- Using CONSULT, perform "Self Diagnostic Result" of "HVAC".
- Check if any DTC No. is displayed in the self-diagnosis results.

##### NOTE:

If DTC is displayed along with DTC U1000 or U1010, first diagnose the DTC U1000 or U1010. Refer to [HAC-53, "DTC Logic"](#) (U1000) or [HAC-54, "DTC Logic"](#) (U1010).

##### Is any DTC No. displayed?

- YES >> Perform diagnosis for the applicable DTC. Refer to [HAC-33, "DTC Index"](#).  
NO >> GO TO 2.

#### 2.CHECK A/C SWITCH COMMUNICATION CIRCUIT CONTINUITY

- Turn ignition switch OFF.
- Disconnect the A/C switch and the A/C auto amp. connectors.
- Check continuity between A/C switch harness connector and A/C auto amp. harness connector.

A/C switch		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M51	8	M54	33	Yes

- Check continuity between A/C switch harness connector and ground.

A/C switch		—	Continuity
Connector	Terminal		
M51	8	Ground	No

##### Is the inspection result normal?

## B24B6 A/C CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

---

YES >> Replace A/C switch. Refer to [HAC-102. "Removal and Installation"](#).  
NO >> Repair harness or connector.

# B24B7 INTAKE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

## B24B7 INTAKE DOOR MOTOR

### DTC Logic

INFOID:0000000011276621

### DTC DETECTION LOGIC

#### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [HAC-53, "DTC Logic"](#).
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. [HAC-54, "DTC Logic"](#).
- If mode door motors DTC (B24B7 – B24B9) are detected, there is probably a disconnected connector or an open circuit in mode door motor drive power supply harness.

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24B7	INTAKE DOOR MOTOR	Short or open circuit of intake door motor drive signal.	<ul style="list-style-type: none"><li>• Intake door motor</li><li>• A/C auto amp.</li><li>• Harness or connectors (The motor circuit is open or shorted.)</li></ul>

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

##### Ⓔ With CONSULT

1. Start engine.
2. Select "Self Diagnostic Result" of "HVAC".
3. Check DTC.

##### Is DTC detected?

- YES >> Refer to [HAC-77, "Diagnosis Procedure"](#).  
NO >> Inspection End.

### Diagnosis Procedure

INFOID:0000000011276622

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

#### 1.CHECK INTAKE DOOR MOTOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect intake door motor connector.
3. Turn ignition switch ON.
4. Check voltage between intake door motor harness connector and ground.

+		-	Voltage (Approx.)
Intake door motor			
Connector	Terminal		
M147	2	Ground	Battery voltage

##### Is the inspection result normal?

- YES >> GO TO 3.  
NO >> GO TO 2.

#### 2.CHECK INTAKE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Check continuity between intake door motor harness connector and A/C auto amp. harness connector.

## B24B7 INTAKE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Intake door motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M147	2	M55	41	Yes

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).

NO >> Repair harness or connector.

### 3.CHECK INTAKE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Check continuity between intake door motor harness connector and A/C auto amp. harness connector.

Intake door motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M147	1	M55	45	Yes
	3		44	
	4		65	
	6		47	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

### 4.CHECK INTAKE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR SHORT

Check continuity between intake door motor harness connector and A/C auto amp. harness connector.

Intake door motor		—	Continuity
Connector	Terminal		
M147	1	Ground	No
	3		
	4		
	6		

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

### 5.CHECK INTAKE DOOR MOTOR

Check intake door motor. Refer to [HAC-81, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).

NO >> Replace intake door motor. Refer to [HAC-110, "INTAKE DOOR MOTOR : Removal and Installation"](#).

## Component Inspection (Motor)

INFOID:0000000011276623

### 1.CHECK INTAKE DOOR MOTOR

1. Remove intake door motor. Refer to [HAC-110, "INTAKE DOOR MOTOR : Removal and Installation"](#).
2. Check resistance between intake door motor terminals. Refer to applicable table for the normal value.

B24B7 INTAKE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Terminal		Resistance (Ω) (Approx.)
2	1	90
	3	
	4	
	6	

Is the inspection result normal?

- YES >> Inspection End.
- NO >> Replace intake door motor. Refer to [HAC-110, "INTAKE DOOR MOTOR : Removal and Installation"](#).

HAC

## B24B9 MODE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

### B24B9 MODE DOOR MOTOR

#### DTC Logic

INFOID:0000000011276624

#### DTC DETECTION LOGIC

##### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [HAC-53, "DTC Logic"](#).
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. [HAC-54, "DTC Logic"](#).
- If mode door motors DTC (B24B7 – B24B9) are detected, there is probably a disconnected connector or an open circuit in mode door motor drive power supply harness.

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24B9	MODE DOOR MOTOR	Short or open circuit of mode door motor drive signal.	<ul style="list-style-type: none"><li>• Mode door motor</li><li>• A/C auto amp.</li><li>• Harness or connectors (The motor circuit is open or shorted.)</li></ul>

#### DTC CONFIRMATION PROCEDURE

##### 1.PERFORM DTC CONFIRMATION PROCEDURE

##### Ⓔ With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" of "HVAC".
3. Check DTC.

##### Is DTC detected?

- YES >> Refer to [HAC-80, "Diagnosis Procedure"](#).  
NO >> Inspection End.

#### Diagnosis Procedure

INFOID:0000000011276625

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

##### 1.CHECK MODE DOOR MOTOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect mode door motor connector.
3. Turn ignition switch ON.
4. Check voltage between mode door motor harness connector and ground.

+		-	Voltage (Approx.)
Mode door motor			
Connector	Terminal		
M143	2	Ground	Battery voltage

##### Is the inspection result normal?

- YES >> GO TO 3.  
NO >> GO TO 2.

##### 2.CHECK MODE DOOR MOTOR POWER SUPPLY CIRCUIT FOR OPEN

1. Disconnect A/C auto amp. connector.
2. Check continuity between mode door motor harness connector and A/C auto amp. harness connector.



## B24B9 MODE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Mode door motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M143	2	M55	41	Yes

Is the inspection result normal?

- YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).  
NO >> Repair harness or connector.

### 3.CHECK MODE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Check continuity between mode door motor harness connector and A/C auto amp. harness connector.

Mode door motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M143	1	M55	50	Yes
	3		49	
	4		69	
	6		68	

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Repair harness or connector.

### 4.CHECK MODE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR SHORT

Check continuity between mode door motor harness connector and A/C auto amp. harness connector.

Mode door motor		—	Continuity
Connector	Terminal		
M143	1	Ground	No
	3		
	4		
	6		

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Repair harness or connector.

### 5.CHECK MODE DOOR MOTOR

Check mode door motor. Refer to [HAC-81, "Component Inspection"](#).

Is the inspection result normal?

- YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).  
NO >> Replace mode door motor. Refer to [HAC-110, "MODE DOOR MOTOR : Removal and Installation"](#).

## Component Inspection

INFOID:0000000011276626

### 1.CHECK MODE DOOR MOTOR

1. Remove mode door motor. Refer to [HAC-110, "MODE DOOR MOTOR : Removal and Installation"](#).
2. Check resistance between mode door motor terminals. Refer to applicable table for the normal value.

## B24B9 MODE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Terminal		Resistance (Ω) (Approx.)
2	1	90
	3	
	4	
	6	

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace mode door motor. Refer to [HAC-110, "MODE DOOR MOTOR : Removal and Installation"](#).

# B24C3 BLOWER MOTOR FEEDBACK

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

## B24C3 BLOWER MOTOR FEEDBACK

### DTC Logic

INFOID:0000000011276627

### DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24C3	BLOWER MOTOR FEEDBACK	Short or open circuit of blower motor feedback circuit.	<ul style="list-style-type: none"><li>Variable blower control</li><li>A/C auto amp.</li><li>Harness and connector</li></ul>

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

ⓂWith CONSULT

- Turn ignition switch ON.
- Perform "Self Diagnostic Result" of "HVAC".
- Check if any DTC No. is displayed in the self-diagnosis results.

Is DTC detected?

- YES >> Refer to [HAC-83, "Diagnosis Procedure"](#).  
NO >> Inspection End.

### Diagnosis Procedure

INFOID:0000000011276628

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

#### NOTE:

This DTC can be set if the BCM is placed in transit mode. Confirm if the DTC is CURRENT or PAST. If PAST, perform the following steps before carrying out Diagnosis Procedure.

- Clear DTC using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
- Perform OPERATION INSPECTION. Refer to [HAC-48, "Work Procedure"](#).
- Perform "Self Diagnostic Result" of "HVAC" using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
- If DTC resets, proceed with Diagnosis Procedure.

#### 1.CHECK FRONT BLOWER FEEDBACK SIGNAL

- Turn ignition switch ON.
- Set air outlet to VENT.
- Change fan speed from 1st – 7th, and check duty ratios between variable blower control harness connector and ground by using an oscilloscope.

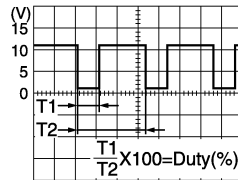
#### NOTE:

Calculate the drive signal duty ratio as shown in the figure.  
T2 = Approx. 1.6 ms

## B24C3 BLOWER MOTOR FEEDBACK

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

+		-	Condition	Duty ratio (Approx.)	Output waveform
Variable blower control					
Connector	Terminal		Fan speed (manual) Air outlet: VENT		
M133	1	Ground	1st	25%	
			2nd	35%	
			3rd	47%	
			4th	57%	
			5th	69%	
			6th	79%	
			7th	91%	

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace variable blower control. Refer to [HAC-112, "Removal and Installation"](#).

### 2. CHECK FRONT BLOWER MOTOR FEEDBACK CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect variable blower control connector and A/C auto amp. connector.
3. Check continuity between variable blower control harness connector and A/C auto amp. connector.

Variable blower control		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M133	1	M55	64	Yes

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to [VTL-16, "Removal and Installation"](#).

NO >> Repair harness or connector.

# B24C6 BLOWER MOTOR CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

## B24C6 BLOWER MOTOR CONTROL

### DTC Logic

INFOID:0000000011276629

### DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24C6	BLOWER MOTOR CONTROL	Short or open circuit of blower motor control circuit.	<ul style="list-style-type: none"><li>• Front blower motor</li><li>• Front blower relay</li><li>• Variable blower control</li><li>• A/C auto amp.</li><li>• Harness and connector</li></ul>

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

##### With CONSULT

1. Turn ignition switch ON.
2. Perform "Self Diagnostic Result" of "HVAC".
3. Check if any DTC No. is displayed in the self-diagnosis results.

##### Is DTC detected?

- YES >> Refer to [HAC-85, "Diagnosis Procedure"](#).  
NO >> Inspection End.

### Diagnosis Procedure

INFOID:0000000011276630

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

#### **NOTE:**

This DTC can be set if the BCM is placed in transit mode. Confirm if the DTC is CURRENT or PAST. If PAST, perform the following steps before carrying out Diagnosis Procedure.

1. Clear DTC using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
2. Perform OPERATION INSPECTION. Refer to [HAC-48, "Work Procedure"](#).
3. Perform "Self Diagnostic Result" of "HVAC" using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
4. If DTC resets, proceed with Diagnosis Procedure.

#### 1.CHECK FUSE

1. Turn ignition switch OFF.
2. Check 15A fuses. [Nos. 17 and 27, located in fuse block (J/B)].

##### **NOTE:**

Refer to [PG-64, "Terminal Arrangement"](#).

##### Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the blown fuse after repairing the affected circuit.

#### 2.CHECK VARIABLE BLOWER CONTROL POWER SUPPLY

1. Disconnect variable blower control connector.
2. Turn ignition switch ON.
3. Check voltage between variable blower control harness connector and ground.

## B24C6 BLOWER MOTOR CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

+		-	Voltage (Approx.)
Variable blower control			
Connector	Terminal		
M133	4	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> GO TO 3.

### 3.CHECK FRONT BLOWER RELAY

1. Turn ignition switch OFF.
2. Check front blower relay. Refer to [HAC-88. "Component Inspection \(Front Blower Relay\)"](#).

Is the inspection result normal?

- YES >> Repair harness or connector between variable blower control and fuse.  
NO >> Replace front blower relay.

### 4.CHECK FRONT BLOWER MOTOR POWER SUPPLY

1. Connect variable blower control connector.
2. Disconnect front blower motor connector.
3. Turn ignition switch ON.
4. Check voltage between front blower motor harness connector and ground.

+		-	Voltage (Approx.)
Front blower motor			
Connector	Terminal		
M144	1	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Replace variable blower control. Refer to [HAC-112. "Removal and Installation"](#).

### 5.CHECK FRONT BLOWER MOTOR CONTROL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect variable blower control connector.
3. Check continuity between variable blower control harness connector and front blower motor harness connector.

Variable blower control		Front blower motor		Continuity
Connector	Terminal	Connector	Terminal	
M134	6	M144	2	Yes

Is the inspection result normal?

- YES >> GO TO 6.  
NO >> Repair harness or connector.

### 6.CHECK FRONT BLOWER MOTOR OPERATION

Check front blower motor operation. Refer to [HAC-88. "Component Inspection \(Front Blower Motor\)"](#).

Is the inspection result normal?

- YES >> GO TO 7.  
NO >> Replace front blower motor. Refer to [VTL-16. "Removal and Installation"](#).

### 7.CHECK VARIABLE BLOWER CONTROL GROUND CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Check continuity between variable blower control harness connector and ground.

# B24C6 BLOWER MOTOR CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Variable blower control		—	Continuity
Connector	Terminal		
M133	2	Ground	Yes

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair harness or connector.

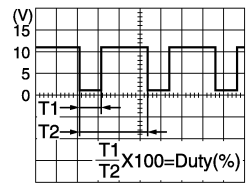
## 8.CHECK VARIABLE BLOWER CONTROL SIGNAL

1. Connect variable blower control connector and A/C auto amp. connector.
2. Turn ignition switch ON.
3. Set air outlet to VENT.
4. Change fan speed from 1st – 7th, and check duty ratios between variable blower control harness connector and ground by using an oscilloscope.

### NOTE:

Calculate the drive signal duty ratio as shown in the figure.

T2 = Approx. 1.6 ms

+		—	Condition	Duty ratio (Approx.)	Output waveform
Variable blower control					
Connector	Terminal		Fan speed (manual) Air outlet: VENT		
M133	3	Ground	1st	25%	
			2nd	35%	
			3rd	47%	
			4th	57%	
			5th	69%	
			6th	79%	
			7th	91%	

Is the inspection result normal?

YES >> Replace variable blower control. Refer to [HAC-112, "Removal and Installation"](#).

NO >> GO TO 9.

## 9.CHECK VARIABLE BLOWER CONTROL SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect variable blower control connector and A/C auto amp. connector.
3. Check continuity between variable blower control harness connector and A/C auto amp. harness connector.

Variable blower control		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M133	3	M55	74	Yes

Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair harness or connector.

## 10.CHECK VARIABLE BLOWER CONTROL SIGNAL CIRCUIT FOR SHORT

Check continuity between variable blower control harness connector and ground.

Variable blower control		—	Continuity
Connector	Terminal		
M133	3	Ground	No

## B24C6 BLOWER MOTOR CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Is the inspection result normal?

- YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).  
NO >> Repair harness or connector.

### Component Inspection (Front Blower Motor)

INFOID:000000011276631

#### 1.CHECK BLOWER MOTOR

1. Connect battery voltage to terminal 1 of blower motor.
2. Connect ground to terminal 2 of blower motor.

Does the blower fan operate?

- YES >> Intermittent incident. Refer to [GI-44, "Intermittent Incident"](#).  
NO >> Replace blower motor. Refer to [VTL-16, "Removal and Installation"](#).

### Component Inspection (Front Blower Relay)

INFOID:000000011276632

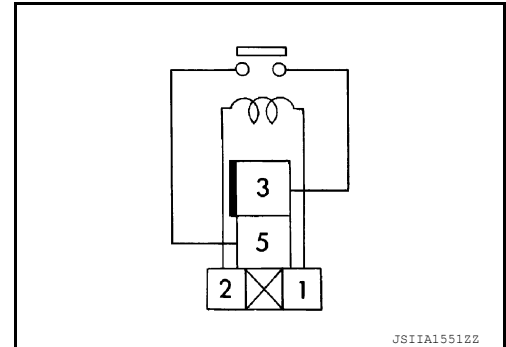
#### 1.CHECK FRONT BLOWER RELAY

1. Remove front blower relay. Refer to [PG-64, "Terminal Arrangement"](#).
2. Check continuity between blower relay terminal 3 and 5 when the voltage is supplied between terminal 1 and 2.

Terminal		Voltage	Continuity
3	5	ON	Yes
		OFF	No

Is the inspection result normal?

- YES >> Inspection End.  
NO >> Replace front blower relay.





# B24D4 A/C CONTROL COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

## B24D4 A/C CONTROL COMMUNICATION

### DTC Logic

INFOID:0000000011276633

### DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24D4	A/C CONTROL COMM	When A/C auto amp. is not transmitting or receiving communication signal for 2 or more seconds.	<ul style="list-style-type: none"><li>A/C switch</li><li>A/C auto amp.</li><li>Harness and connector (Communication line is open or shorted)</li></ul>

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

##### With CONSULT

- Turn ignition switch ON.
- Perform "Self Diagnostic Result" of "HVAC".
- Check if any DTC No. is displayed in the self-diagnosis results.

##### Is DTC detected?

- YES >> Refer to [HAC-89, "Diagnosis Procedure"](#).  
NO >> Inspection End.

### Diagnosis Procedure

INFOID:0000000011276634

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

#### 1.CHECK WITH SELF-DIAGNOSIS FUNCTION OF CONSULT

- Using CONSULT, perform "Self Diagnostic Result" of "HVAC".
- Check if any DTC No. is displayed in the self-diagnosis results.

##### NOTE:

If DTC is displayed along with DTC U1000 or U1010, first diagnose the DTC U1000 or U1010. Refer to [HAC-53, "DTC Logic"](#) (U1000) or [HAC-54, "DTC Logic"](#) (U1010).

##### Is any DTC No. displayed?

- YES >> Perform diagnosis for the applicable DTC. Refer to [HAC-33, "DTC Index"](#).  
NO >> GO TO 2.

#### 2.CHECK A/C SWITCH COMMUNICATION CIRCUIT CONTINUITY

- Turn ignition switch OFF.
- Disconnect the A/C switch and the A/C auto amp. connectors.
- Check continuity between A/C switch harness connector and A/C auto amp. harness connector.

A/C switch		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M51	8	M54	33	Yes

- Check continuity between A/C switch harness connector and ground.

A/C switch		—	Continuity
Connector	Terminal		
M51	8	Ground	No

##### Is the inspection result normal?

## B24D4 A/C CONTROL COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

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YES >> Replace A/C switch. Refer to [HAC-102. "Removal and Installation"](#).  
NO >> Repair harness or connector.

# MAGNET CLUTCH

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

## MAGNET CLUTCH

### Component Function Check

INFOID:0000000011276635

#### 1.CHECK MAGNET CLUTCH OPERATION

Perform "COMPRESSOR" in "Active Test" of "IPDM E/R". Refer to [PCS-11, "CONSULT Function \(IPDM E/R\)"](#).

Does it operate normally?

- YES >> Inspection End.  
NO >> Refer to [HAC-91, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:0000000011276636

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

#### 1.CHECK FUSE

1. Turn ignition switch OFF.
2. Check 10A fuse (No. 50, located in IPDM E/R).

**NOTE:**

Refer to [PG-68, "IPDM E/R Terminal Arrangement"](#).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the blown fuse after repairing the affected circuit.

#### 2.CHECK MAGNET CLUTCH POWER SUPPLY CIRCUIT

1. Disconnect A/C compressor connector and IPDM E/R connector.
2. Check continuity between A/C compressor harness connector and IPDM E/R harness connector.

A/C compressor		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
F27	1	F35	65	Yes

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair harness or connector.

#### 3.CHECK MAGNET CLUTCH GROUND CIRCUIT

1. Disconnect A/C compressor connector.
2. Check continuity between A/C compressor harness connector and ground.

A/C compressor			Continuity
Connector	Terminal		
F27	2	Ground	Yes

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Repair harness or connector.

#### 4.CHECK MAGNET CLUTCH

Directly apply battery voltage to the magnet clutch. Check operation visually and by sound.

Does it operate normally?

- YES >> Replace IPDM E/R. Refer to [PCS-40, "Removal and Installation"](#).  
NO >> Replace magnet clutch. Refer to [HA-29, "Removal and Installation"](#).

# ECV (ELECTRICAL CONTROL VALVE)

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

## ECV (ELECTRICAL CONTROL VALVE)

### Diagnosis Procedure

INFOID:0000000011276637

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

#### 1. CHECK ECV (ELECTRICAL CONTROL VALVE) POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect A/C compressor connector.
3. Turn ignition switch ON.
4. Check voltage between A/C compressor harness connector and ground.

+		-	Voltage (Approx.)
A/C compressor			
Connector	Terminal		
F15	3	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

#### 2. CHECK FUSE

1. Turn ignition switch OFF.
2. Check 10A fuse [No. 50, located in IPDM E/R]. Refer to [PCS-40, "Removal and Installation"](#).

Is the inspection result normal?

YES >> Repair harness or connector.

NO >> Replace the blown fuse after repairing the affected circuit.

#### 3. CHECK ECV CONTROL SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between A/C compressor harness connector and IPDM E/R harness connector.

A/C compressor		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
F15	4	F42	98	Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

#### 4. CHECK ECV CONTROL SIGNAL CIRCUIT FOR SHORT

Check continuity between A/C compressor harness connector and ground.

A/C compressor		—	Continuity
Connector	Terminal		
F15	4	Ground	No

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

#### 5. CHECK ECV

Check ECV. Refer to [HAC-93, "Component Inspection"](#).

## ECV (ELECTRICAL CONTROL VALVE)

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace A/C compressor. Refer to [HA-29, "Removal and Installation"](#).

### 6.CHECK INTERMITTENT INCIDENT

Refer to [GI-44, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-40, "Removal and Installation"](#).

NO >> Repair or replace malfunctioning parts.

## Component Inspection

INFOID:0000000011276638

### 1.CHECK ECV (ELECTRICAL CONTROL VALVE)

1. Turn ignition switch OFF.
2. Disconnect A/C compressor connector.
3. Check continuity between A/C compressor connector F15 terminals.

Terminals		Condition	Resistance (k $\Omega$ ) (Approx.)
		Temperature: °C (°F)	
3	4	20 (68)	10.1 – 11.1

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace A/C compressor. Refer to [HA-29, "Removal and Installation"](#).

HAC

# POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

## POWER SUPPLY AND GROUND CIRCUIT

### A/C SWITCH ASSEMBLY

#### A/C SWITCH ASSEMBLY : Component Function Check

INFOID:0000000011276639

#### 1.CHECK OPERATION

1. Press the AUTO switch, and then check that "AUTO" is shown on the display.
2. Operate the temperature control dial (driver side). Check that the fan speed or outlet changes. (The discharge air temperature or fan speed varies depending on the ambient temperature, in-vehicle temperature, and temperature setting.)

Does it operate normally?

YES >> Inspection End.

NO >> Perform trouble diagnosis for the A/C switch. Refer to [HAC-94. "A/C SWITCH ASSEMBLY : Diagnosis Procedure"](#).

#### A/C SWITCH ASSEMBLY : Diagnosis Procedure

INFOID:0000000011276640

Regarding Wiring Diagram information, refer to [HAC-35. "Wiring Diagram"](#).

#### 1.CHECK A/C SWITCH POWER SUPPLY

1. Disconnect the A/C switch connector.
2. Turn ignition switch ON.
3. Check voltage between A/C switch harness connector and ground.

(+)		(-)	Voltage (Approx.)
A/C switch			
Connector	Terminal		
M51	4	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 2.

#### 2.CHECK FUSE

Check 10A fuse [No. 20, located in the fuse block (J/B)].

**NOTE:**

Refer to [PG-64. "Terminal Arrangement"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace the blown fuse after repairing the affected circuit.

#### 3.CHECK A/C SWITCH POWER SUPPLY CIRCUIT FOR OPEN

1. Check continuity between A/C switch harness connector and fuse block (J/B) harness connector.

A/C switch		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
M51	4	M34	16R	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair harness or connector.

#### 4.CHECK A/C SWITCH GROUND CIRCUIT

1. Turn ignition switch OFF.

## POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

2. Check continuity between A/C switch harness connector and ground.

A/C switch		—	Continuity
Connector	Terminal		
M51	1	Ground	Yes

Is the inspection result normal?

YES >> Replace the A/C switch. Refer to [HAC-102. "Removal and Installation"](#).  
NO >> Repair the harness or connectors.

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# HEATER AND AIR CONDITIONING SYSTEM CONTROL SYMPTOMS

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

## SYMPTOM DIAGNOSIS

### HEATER AND AIR CONDITIONING SYSTEM CONTROL SYMPTOMS

#### Diagnosis Chart By Symptom

INFOID:0000000011276641

#### NOTE:

Perform the self-diagnoses with CONSULT before performing the symptom diagnosis. If DTC is detected, perform the corresponding diagnosis.

Symptom	Corresponding malfunction part	Reference
<ul style="list-style-type: none"> <li>Air conditioning does not activate.</li> <li>Air conditioning cannot be controlled.</li> <li>Operation status of air conditioning is not indicated on display.</li> </ul>	<ul style="list-style-type: none"> <li>A/C auto amp. ignition power supply circuit</li> <li>Front A/C control (A/C auto amp.)</li> </ul>	<a href="#">HAC-56, "Diagnosis Procedure"</a>
<ul style="list-style-type: none"> <li>Air outlet does not change.</li> <li>Mode door motor does not operate normally.</li> </ul>	<ul style="list-style-type: none"> <li>Circuit between mode door motor and A/C auto amp.</li> <li>Mode door motor control linkage</li> <li>Mode door motor</li> <li>A/C auto amp.</li> </ul>	<a href="#">HAC-80, "Diagnosis Procedure"</a>
<ul style="list-style-type: none"> <li>Discharge air temperature of driver side does not change.</li> <li>Air mix door motor LH does not operate normally.</li> </ul>	<ul style="list-style-type: none"> <li>Circuit between air mix door motor LH and A/C auto amp.</li> <li>Air mix door motor LH installation condition</li> <li>Air mix door motor LH</li> <li>A/C auto amp.</li> </ul>	<a href="#">HAC-67, "Diagnosis Procedure"</a>
<ul style="list-style-type: none"> <li>Discharge air temperature of passenger side does not change.</li> <li>Air mix door motor RH does not operate normally.</li> </ul>	<ul style="list-style-type: none"> <li>Circuit between air mix door motor RH and A/C auto amp.</li> <li>Air mix door motor RH installation condition</li> <li>Air mix door motor RH</li> <li>A/C auto amp.</li> </ul>	<a href="#">HAC-70, "Diagnosis Procedure"</a>
<ul style="list-style-type: none"> <li>Intake door does not change.</li> <li>Intake door motor does not operate normally.</li> </ul>	<ul style="list-style-type: none"> <li>Circuit between intake door motor and A/C auto amp.</li> <li>Intake door motor control linkage</li> <li>Intake door motor</li> <li>A/C auto amp.</li> </ul>	<a href="#">HAC-77, "Diagnosis Procedure"</a>
Blower motor operation is malfunctioning.	<ul style="list-style-type: none"> <li>Power supply system of front blower motor</li> <li>Circuit between front blower motor and A/C auto amp.</li> <li>Front blower motor</li> <li>A/C auto amp.</li> </ul>	<a href="#">HAC-85, "Diagnosis Procedure"</a>
A/C compressor does not operate.	<ul style="list-style-type: none"> <li>Circuit between magnet clutch and IPDM E/R</li> <li>Magnet clutch</li> <li>IPDM E/R (A/C relay)</li> <li>Circuit between ECM and refrigerant pressure sensor</li> <li>Refrigerant pressure sensor</li> <li>CAN communication circuit</li> <li>A/C auto amp.</li> </ul>	<a href="#">HAC-91, "Diagnosis Procedure"</a>
<ul style="list-style-type: none"> <li>Insufficient cooling.</li> <li>No cool air comes out. (Air flow volume is normal.)</li> </ul>	<ul style="list-style-type: none"> <li>Magnet clutch control system</li> <li>Drive belt slipping</li> <li>Refrigerant cycle</li> <li>ECV (electrical control valve)</li> <li>Air leakage from each duct</li> <li>A/C auto amp. connection recognition signal circuit</li> <li>Temperature setting trimmer (front)</li> </ul>	<a href="#">HAC-98, "Diagnosis Procedure"</a>



# HEATER AND AIR CONDITIONING SYSTEM CONTROL SYMPTOMS

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Symptom		Corresponding malfunction part	Reference
<ul style="list-style-type: none"> <li>Insufficient heating.</li> <li>No warm air comes out. (Air flow volume is normal.)</li> </ul>		<ul style="list-style-type: none"> <li>Engine cooling system</li> <li>Heater hose</li> <li>Heater core</li> <li>Air leakage from each duct</li> <li>Temperature setting trimmer (front)</li> </ul>	<a href="#">HAC-99, "Diagnosis Procedure"</a>
Noise is heard when front air conditioning system operates.	During A/C compressor operation	Refrigerant cycle	<a href="#">HA-20, "Symptom Table"</a>
	During front blower motor operation	<ul style="list-style-type: none"> <li>Mixing any foreign object in front blower motor</li> <li>Front blower motor fan breakage</li> <li>Front blower motor rotation inferiority</li> </ul>	<a href="#">HAC-88, "Component Inspection (Front Blower Motor)"</a>
<ul style="list-style-type: none"> <li>Memory function does not operate.</li> <li>Setting temperature is not memorized.</li> </ul>		<ul style="list-style-type: none"> <li>Battery power supply system of A/C auto amp.</li> <li>A/C auto amp.</li> </ul>	<a href="#">HAC-56, "Diagnosis Procedure"</a>

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## INSUFFICIENT COOLING

## Description

INFOID:0000000011276642

## Symptom

- Insufficient cooling
- No cool air comes out. (Air flow volume is normal.)

## Diagnosis Procedure

INFOID:0000000011276643

**NOTE:**

Perform self-diagnosis with CONSULT before performing symptom diagnosis. If any DTC is detected, perform the corresponding diagnosis.

**1.CHECK MAGNET CLUTCH OPERATION**

1. Turn ignition switch ON.
2. Operate fan switch.
3. Press A/C switch.
4. Check that A/C indicator turns ON. Check visually and by sound that A/C compressor operates.
5. Press A/C switch again.
6. Check that A/C indicator turns OFF. Check that A/C compressor stops.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Perform diagnosis of "COMPRESSOR DOES NOT OPERATE" in "SYMPTOM DIAGNOSIS".  
 Refer to [HAC-100. "Diagnosis Procedure"](#).

**2.CHECK DRIVE BELT**

Check tension of drive belt. Refer to [EM-15. "Checking"](#).

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Adjust or replace drive belt depending on the inspection results.

**3.CHECK REFRIGERANT CYCLE**

Connect recovery/recycling recharging equipment to the vehicle and perform pressure inspection with gauge.  
 Refer to [HA-17. "Symptom Table"](#).

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Repair or replace parts depending on the inspection results.

**4.CHECK AIR LEAKAGE FROM EACH DUCT**

Check duct and nozzle, etc. of the front air conditioning system for leakage.

Is the inspection result normal?

- YES >> GO TO 5.  
 NO >> Repair or replace parts depending on the inspection results.

**5.CHECK SETTING OF TEMPERATURE SETTING TRIMMER (FRONT)**

1. Check setting value of temperature setting trimmer (front). Refer to [HAC-50. "Temperature Setting Trimmer"](#).
2. Check that temperature setting trimmer (front) is set to "+ direction".

**NOTE:**

The control temperature can be set with the setting of the temperature setting trimmer (front).

3. Set difference between set temperature and control temperature to "0".

Is inspection result normal?

- YES >> Inspection End.  
 NO >> Replace A/C auto amp. Refer to [HAC-103. "Removal and Installation"](#).

## INSUFFICIENT HEATING

## Description

INFOID:0000000011276644

## Symptom

- Insufficient heating
- No warm air comes out. (Air flow volume is normal.)

## Diagnosis Procedure

INFOID:0000000011276645

**NOTE:**

Perform self-diagnosis with CONSULT before performing symptom diagnosis. If DTC is detected, perform the corresponding diagnosis.

**1.CHECK COOLING SYSTEM**

1. Check engine coolant level and check leakage. Refer to [CO-8, "Inspection"](#).
2. Check reservoir tank cap. Refer to [CO-12, "RADIATOR CAP : Inspection"](#).
3. Check water flow sounds of the engine coolant. Refer to [CO-8, "Inspection"](#).

Is the inspection result normal?

YES &gt;&gt; GO TO 2.

NO &gt;&gt; Refill engine coolant and repair or replace parts depending on the inspection results.

**2.CHECK HEATER HOSE**

Check installation of heater hose visually or by touching.

Is the inspection result normal?

YES &gt;&gt; GO TO 3.

NO &gt;&gt; Repair or replace parts depending on the inspection results.

**3.CHECK HEATER CORE**

1. Check temperature of inlet hose and outlet hose of front heater core.
2. Check that inlet side of heater core is hot and the outlet side is slightly lower than/almost equal to the inlet side.

**CAUTION:**

**Always perform the temperature inspection in a short period of time because the engine coolant temperature is very hot.**

Is the inspection result normal?

YES &gt;&gt; GO TO 4.

NO >> Replace heater core. Refer to [HA-43, "HEATER CORE : Removal and Installation"](#).**4.CHECK AIR LEAKAGE FROM EACH DUCT**

Check duct and nozzle, etc. of front air conditioning system for air leakage.

Is the inspection result normal?

YES &gt;&gt; GO TO 5.

NO &gt;&gt; Repair or replace parts depending on the inspection results.

**5.CHECK SETTING OF TEMPERATURE SETTING TRIMMER (FRONT)**

1. Check setting value of temperature setting trimmer (front). Refer to [HAC-50, "Temperature Setting Trimmer"](#).
2. Check that temperature setting trimmer (front) is set to "– direction".

**NOTE:**

The control temperature can be set by the temperature setting trimmer (front).

3. Set difference between the set temperature and control temperature to "0".

Are the symptoms solved?

YES &gt;&gt; Inspection End.

NO >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).

# COMPRESSOR DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

## COMPRESSOR DOES NOT OPERATE

### Description

INFOID:0000000011276646

Symptom: Compressor does not operate.

### Diagnosis Procedure

INFOID:0000000011276647

#### NOTE:

- Perform self-diagnoses with CONSULT before performing symptom diagnosis. If DTC is detected, perform the corresponding diagnosis.
- Check that refrigerant system is properly charged. If refrigerant amount is below the proper amount, perform inspection of refrigerant leakage.

### 1.CHECK MAGNET CLUTCH OPERATION

Check magnet clutch. Refer to [HAC-91, "Component Function Check"](#).

Does it operate normally?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning parts.

### 2.CHECK REFRIGERANT PRESSURE SENSOR

Check refrigerant pressure sensor. Refer to [EC-485, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

### 3.CHECK A/C AUTO AMP. OUTPUT SIGNAL

 With CONSULT

Check "COMP REQ SIG" and "FAN REQ SIG" in "Data Monitor" of "HVAC".


Monitor item	Condition		Status
COMP REQ SIG	A/C switch	ON	On
		OFF	Off
FAN REQ SIG	Blower motor	ON	On
		OFF	Off

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).

### 4.CHECK ECM INPUT SIGNAL

 With CONSULT

Check "AIR COND SIG" and "HEATER FAN SW" in "Data Monitor" of "ECM".


Monitor item	Condition		Status
AIR COND SIG	A/C switch	ON	On
		OFF	Off
HEATER FAN SW	Blower motor	ON	On
		OFF	Off

Is the inspection result normal?

YES >> GO TO 5.

NO >> Check CAN communication system. Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

### 5.CHECK IPDM E/R INPUT SIGNAL

 With CONSULT

1. Start engine.

COMPRESSOR DOES NOT OPERATE

< SYMPTOM DIAGNOSIS > [AUTOMATIC AIR CONDITIONING]

2. Check “AC COMP REQ” in “Data Monitor” of “IPDM E/R”.

Monitor item	Condition		Status
AC COMP REQ	A/C switch	ON	On
		OFF	Off

Is the inspection result normal?

- YES >> Inspection End.
- NO >> Check CAN communication system. Refer to [LAN-17. "Trouble Diagnosis Flow Chart"](#).

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## REMOVAL AND INSTALLATION

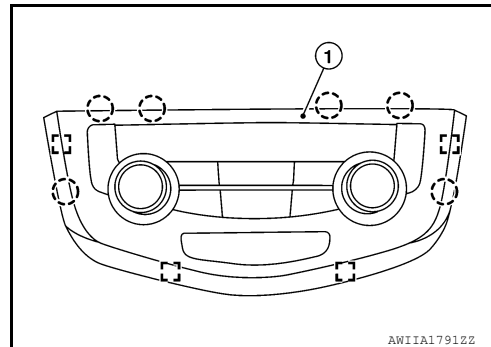
### A/C SWITCH ASSEMBLY

#### Removal and Installation

INFOID:0000000011276648

#### REMOVAL

1. Release the A/C switch assembly clips and pawls using a suitable tool.  
□: Metal clip  
○: Pawl
2. Disconnect the harness connectors from the A/C switch assembly (1) and remove.



AWI1A17912Z

#### INSTALLATION

Installation is in the reverse order of removal.

A/C AUTO AMP.

Removal and Installation

INFOID:0000000011276649

REMOVAL

1. Remove instrument side finisher (RH). Refer to [IP-14. "Exploded View"](#).
2. Disconnect the harness connectors from the A/C auto amp.
3. Release pawls and remove A/C auto amp.

INSTALLATION

Installation is in the reverse order of removal.

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## AMBIENT SENSOR

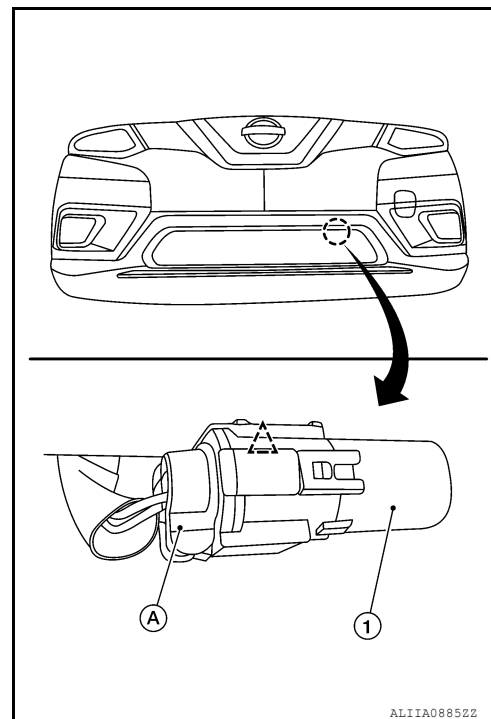
### Removal and Installation

INFOID:000000011276650

#### REMOVAL

1. Disconnect the harness connector (A) from the ambient sensor (1).
2. Release the clip and remove ambient sensor.

△△: Clip



#### INSTALLATION

Installation is in the reverse order of removal.



## IN-VEHICLE SENSOR

< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

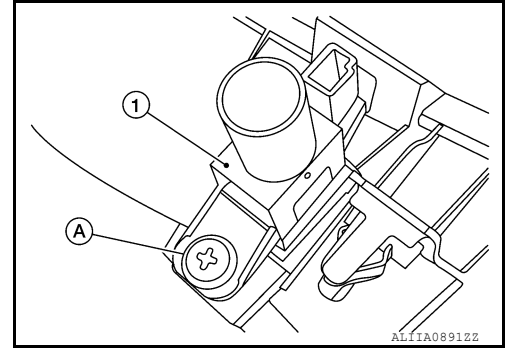
### IN-VEHICLE SENSOR

#### Removal and Installation

INFOID:0000000011276651

#### REMOVAL

1. Remove cluster lid C. Refer to [IP-22. "Removal and Installation"](#).
2. Remove screw (A) and in-vehicle sensor (1).



#### INSTALLATION

Installation is in the reverse order of removal.

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# SUNLOAD SENSOR

< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

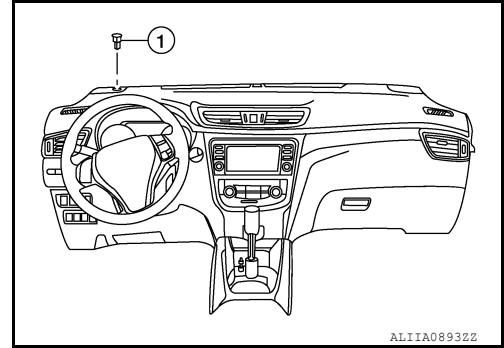
## SUNLOAD SENSOR

### Removal and Installation

INFOID:000000011276652

#### REMOVAL

1. Release the sunload sensor pawls using a suitable tool.
2. Disconnect the harness connector from the sunload sensor (1) and remove.



#### INSTALLATION

Installation is in the reverse order of removal.

# INTAKE SENSOR

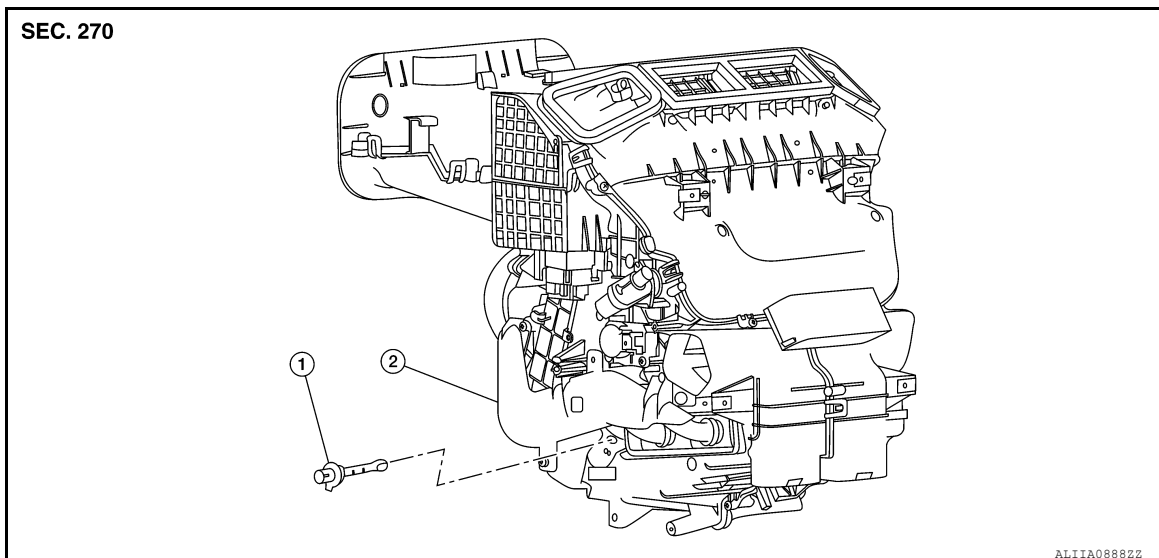
< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

## INTAKE SENSOR

Exploded View

INFOID:0000000011276653



## Removal and Installation

INFOID:0000000011276654

### REMOVAL

1. Remove front foot duct (LH). Refer to [VTL-10, "FRONT FOOT DUCT : Removal and Installation"](#).
2. Disconnect the harness connector and remove intake sensor.

### INSTALLATION

Installation is in the reverse order of removal.

# REFRIGERANT PRESSURE SENSOR

< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

## REFRIGERANT PRESSURE SENSOR

### Removal and Installation

INFOID:000000011276655

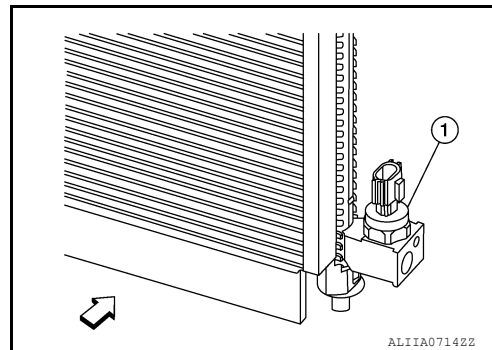
#### REMOVAL

1. Discharge the refrigerant. Refer to [HA-22, "Recycle Refrigerant"](#).
2. Remove front bumper fascia. Refer to [EXT-17, "Removal and Installation"](#).
3. Remove air guide (RH). Refer to [HA-37, "Exploded View"](#).
4. Disconnect the harness connector from the refrigerant pressure sensor.
5. Remove the refrigerant pressure sensor (1) from the condenser.

⇐: Front

#### CAUTION:

Cap or wrap the opening of the refrigerant pressure sensor with suitable material such as vinyl tape to avoid the entry of air.



#### INSTALLATION

Installation is in the reverse order of removal.

#### CAUTION:

- Do not reuse O-ring.
- Apply A/C oil to new O-ring for installation.
- After charging refrigerant, check for leaks. Refer to [HA-21, "Leak Test"](#).

# DOOR MOTOR

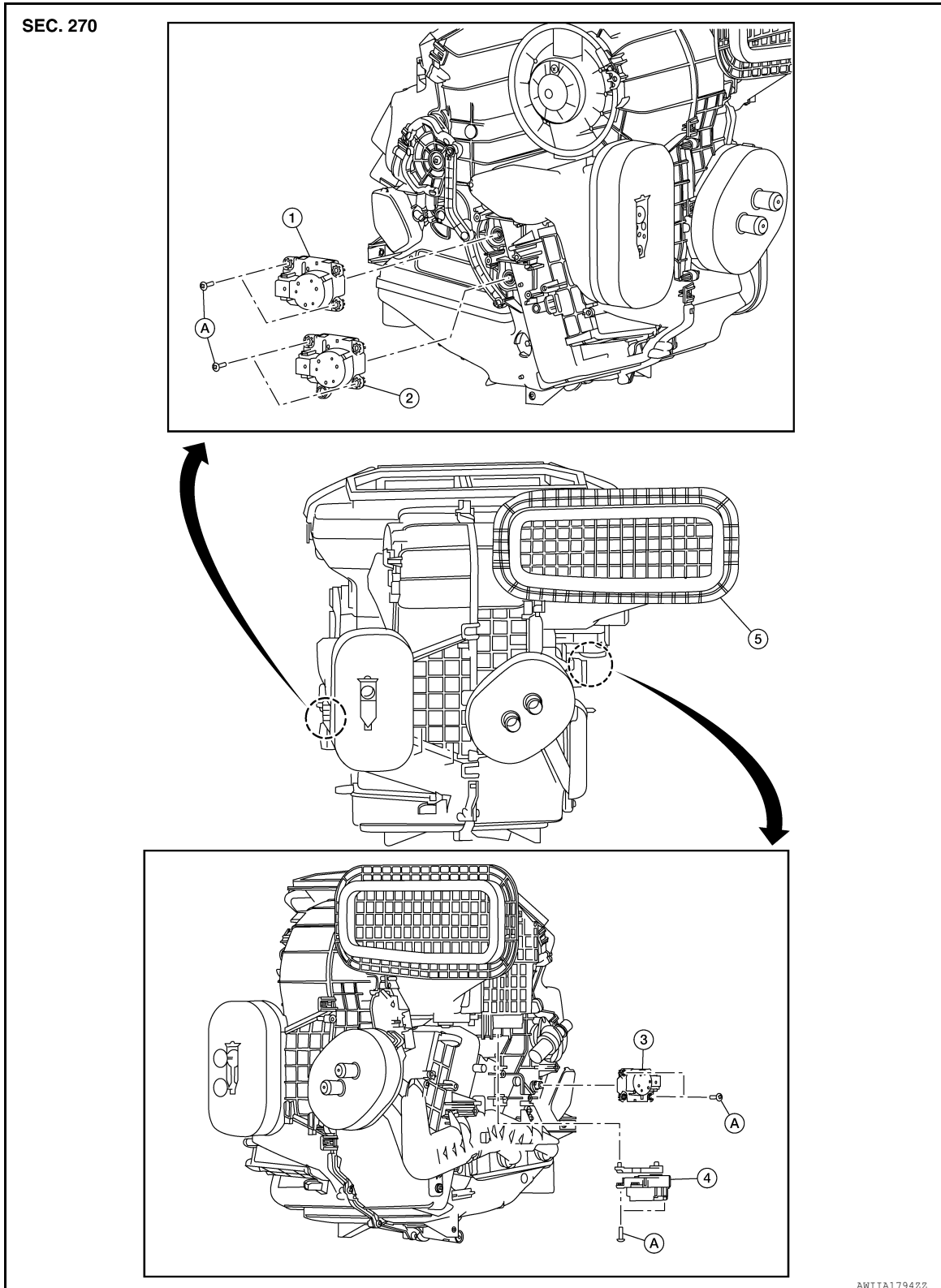
< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

## DOOR MOTOR

### Exploded View

INFOID:0000000011276656



- 1. Mode door motor
- 4. Intake door motor

- 2. Air mix door motor (RH)
- 5. Heating and cooling unit assembly

- 3. Air mix door motor (LH)
- A. Screw

# DOOR MOTOR

< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

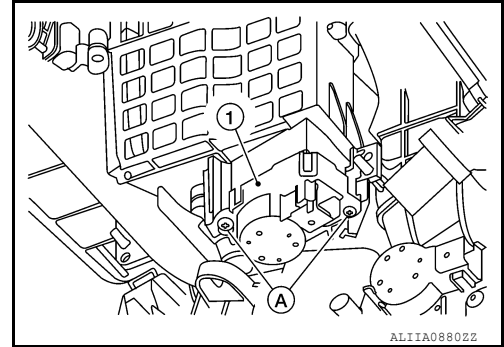
## INTAKE DOOR MOTOR

### INTAKE DOOR MOTOR : Removal and Installation

INFOID:000000011276657

#### REMOVAL

1. Remove front foot duct (LH). Refer to [VTL-10, "FRONT FOOT DUCT : Removal and Installation"](#).
2. Disconnect the harness connector from the intake door motor.
3. Remove screws (A) and intake door motor (1).



#### INSTALLATION

Installation is in the reverse order of removal.

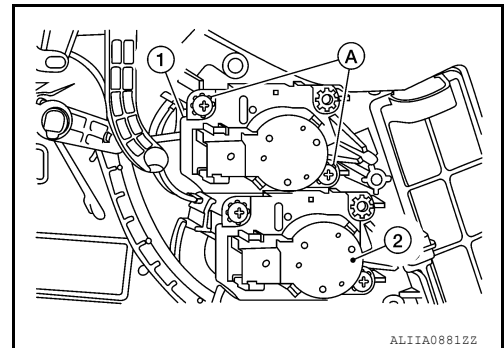
## MODE DOOR MOTOR

### MODE DOOR MOTOR : Removal and Installation

INFOID:000000011276658

#### REMOVAL

1. Remove front foot duct (RH). Refer to [VTL-10, "FRONT FOOT DUCT : Removal and Installation"](#).
2. Disconnect the harness connector from the mode door motor.
3. Remove screws (A) and mode door motor (1).  
(2): Air mix door motor (RH)



#### INSTALLATION

Installation is in the reverse order of removal.

## AIR MIX DOOR MOTOR

### AIR MIX DOOR MOTOR : Removal and Installation

INFOID:000000011276659

#### REMOVAL

Air Mix Door Motor (LH)

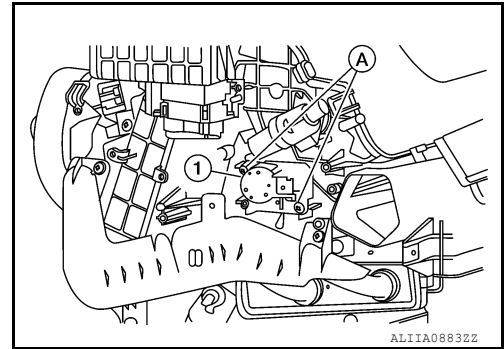
1. Remove front foot duct (LH). Refer to [VTL-10, "FRONT FOOT DUCT : Removal and Installation"](#).
2. Disconnect the harness connector from the air mix door motor (LH).

## DOOR MOTOR

### < REMOVAL AND INSTALLATION >

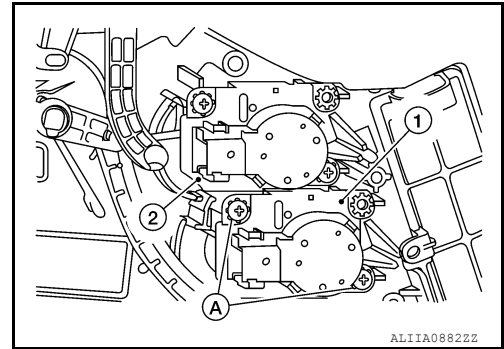
### [AUTOMATIC AIR CONDITIONING]

3. Remove screws (A) and air mix door motor (LH) (1).



#### Air Mix Door Motor (RH)

1. Remove front foot duct (RH). Refer to [VTL-10. "FRONT FOOT DUCT : Removal and Installation"](#).
2. Disconnect the harness connector from the air mix door motor (RH).
3. Remove screws (A) and air mix door motor (RH) (1).  
(2): Mode door motor



### INSTALLATION

Installation is in the reverse order of removal.

## VARIABLE BLOWER CONTROL

< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

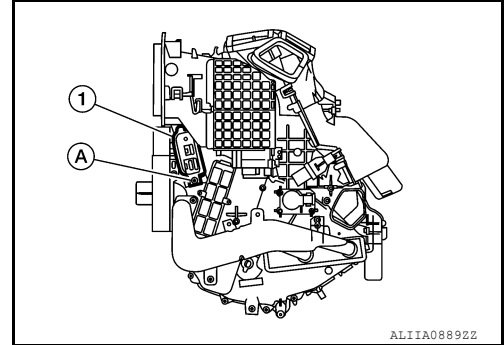
### VARIABLE BLOWER CONTROL

#### Removal and Installation

INFOID:000000011276660

#### REMOVAL

1. Remove center console side finisher (LH). Refer to [IP-19. "Exploded View"](#).
2. Disconnect the harness connector from the variable blower control.
3. Remove screw (A) and variable blower control (1).



#### INSTALLATION

Installation is in the reverse order of removal.



## PRECAUTION

### PRECAUTIONS

#### Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000011276661

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

#### **WARNING:**

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

#### PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

#### **WARNING:**

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

#### Precaution for Work

INFOID:0000000011276662

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
  - Water soluble dirt:
    - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
    - Then rub with a soft, dry cloth.
  - Oily dirt:
    - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
    - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
    - Then rub with a soft, dry cloth.
  - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
  - For genuine leather seats, use a genuine leather seat cleaner.

# PREPARATION

< PREPARATION >

[MANUAL AIR CONDITIONING]

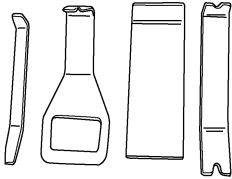
## PREPARATION

### PREPARATION

#### Special Service Tool


INFOID:0000000011276663

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
<p>— (J-46534) Trim Tool Set</p>  <p>AWJIA0483ZZ</p>	Removing trim components

#### Commercial Service Tool

INFOID:0000000011276664

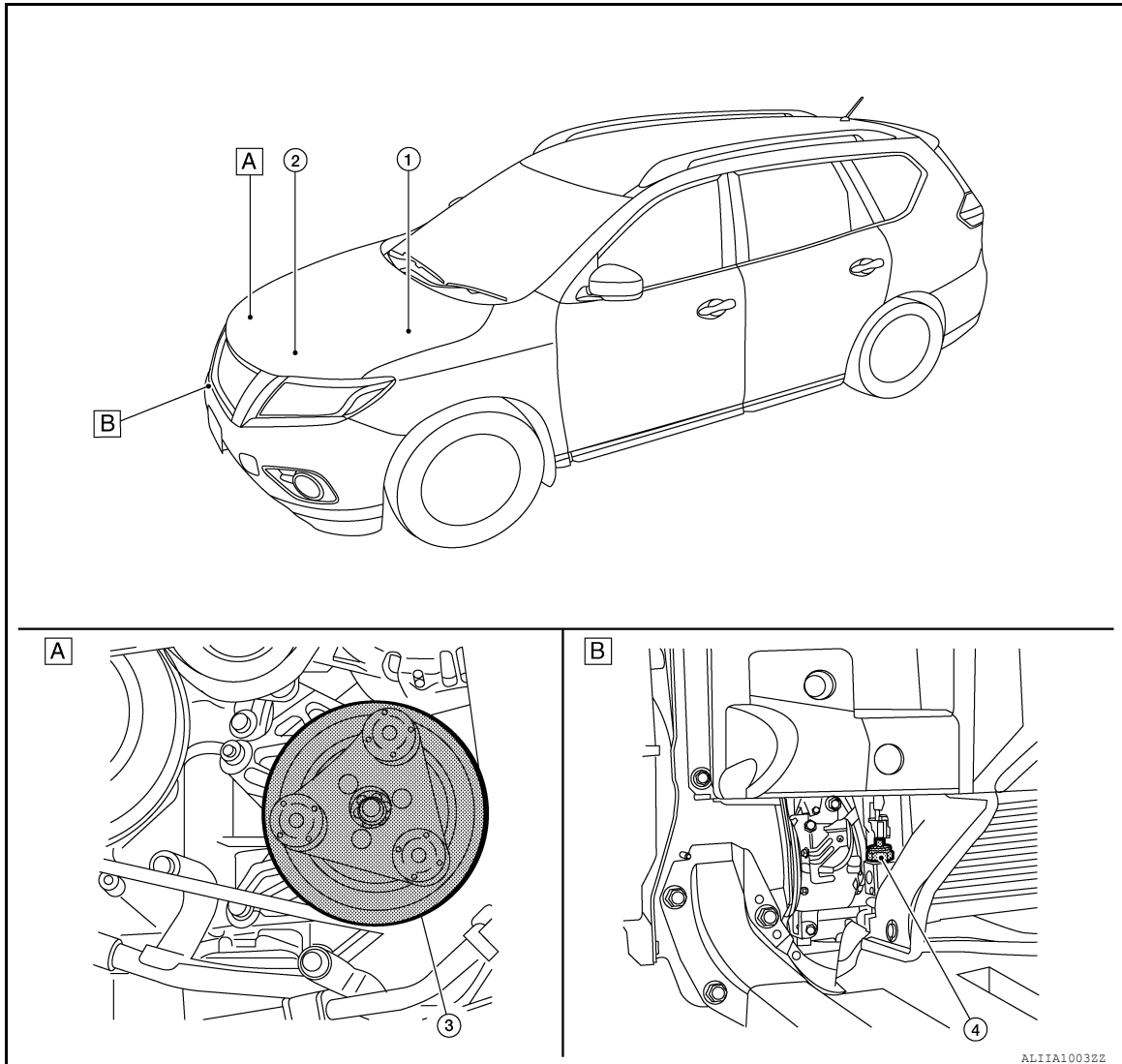
(TechMate No.) Tool name	Description
<p>( — ) Power tool</p>  <p>PIIB1407E</p>	Loosening nuts, screws and bolts

## SYSTEM DESCRIPTION

### COMPONENT PARTS

#### Component Part Location

INFOID:0000000011276665



A. RH side of engine compartment

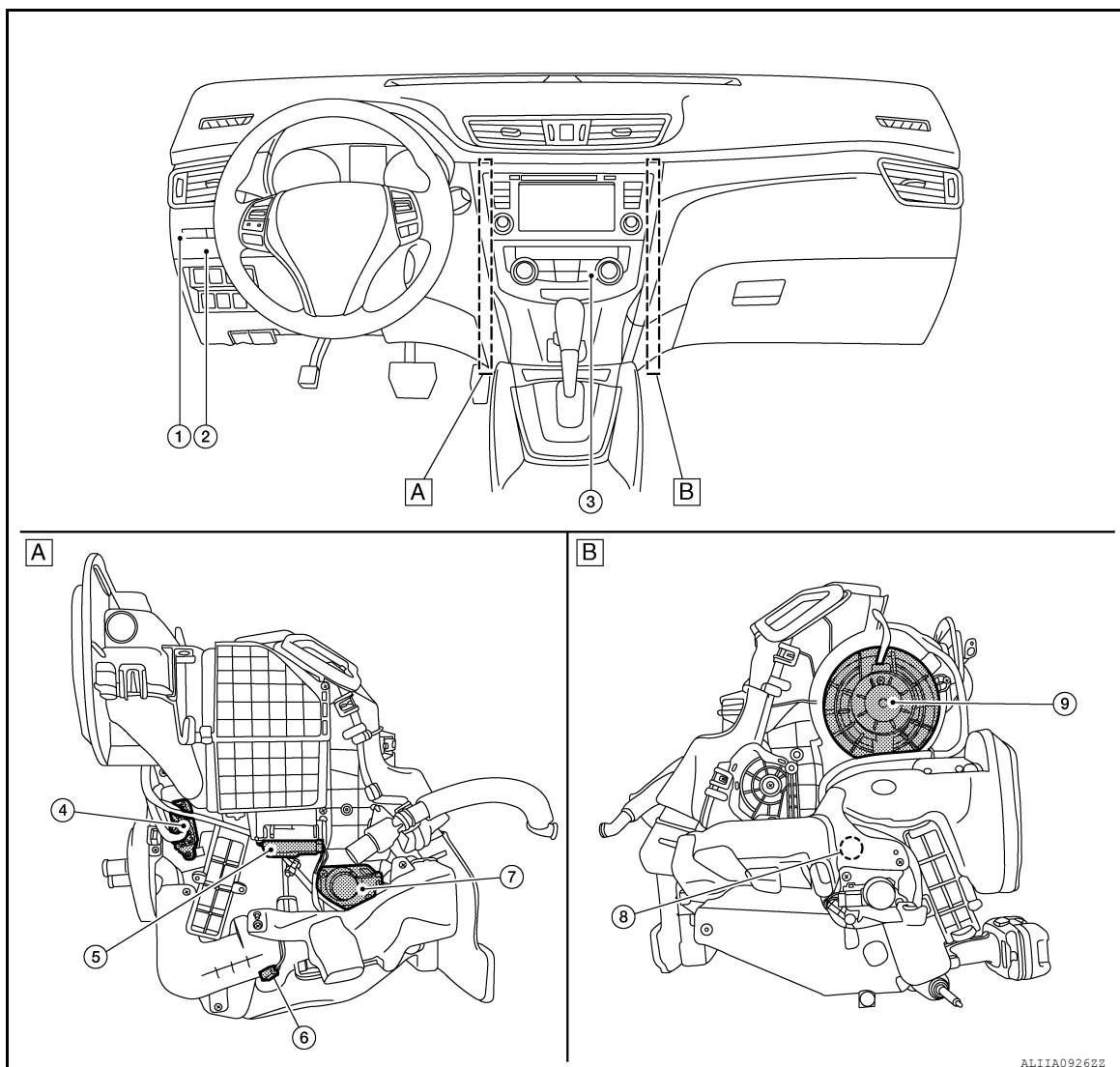
B. RH front of vehicle (view with front bumper fascia removed)

No.	Component	Description
1.	IPDM E/R	Refer to <a href="#">PCS-7, "RELAY CONTROL SYSTEM : System Description"</a> .
2.	ECM	The ECM sends a compressor ON request to the IPDM E/R based on the status of engine operation and load as well as refrigerant pressure information. If all the conditions are met for A/C operation, the ECM transmits the compressor ON request to the IPDM E/R.
3.	A/C Compressor	Vaporized refrigerant is drawn into the A/C compressor from the evaporator, where it is compressed to a high pressure, high temperature vapor. The hot, compressed vapor is then discharged to the condenser.
4.	Refrigerant pressure sensor	Refer to <a href="#">EC-28, "Refrigerant Pressure Sensor"</a> .

# COMPONENT PARTS

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]



A. Left side of A/C unit

B. Right side of A/C unit

No.	Component	Description
1.	Front blower relay	The front blower relay controls the flow of current to fuse 17 and 27 in the Fuse Block (J/B). The relay is grounded when the ignition switch is in the ON position.
2.	BCM	The BCM receives the fan ON and A/C ON signals from the front air control and sends a compressor ON request to the ECM.
3.	Front air control	The front air control controls the operation of the A/C and heating system based on inputs from the temperature control knob, the mode switches, the blower control dial, the intake sensor, and inputs received from the ECM across the CAN. Diagnosis of the front air control can be performed using the CONSULT. There is no self-diagnostic feature available.
4.	Variable blower control	The variable blower control controls the speed of the blower motor by controlling the ground circuit of the blower motor. The front air control provides voltage to the gate of the variable blower control based on the position of the blower control dial.
5.	Intake door motor	The intake door motor controls the position of the intake door. Fresh air is allowed to enter the cabin in one position, and recirculated inside air is allowed to enter in the other position. The intake door motor receives position commands from the front air control.
6.	Intake sensor	The intake sensor measures the temperature of the front evaporator fins. The sensor uses a thermistor which is sensitive to the change in temperature. The electrical resistance of the thermistor decreases as temperature increases.

## COMPONENT PARTS

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]

No.	Component	Description
7.	Air mix door motor	The air mix door controls the mix of hot or cold air that enters the ventilation system. It is controlled by the front air control based on the position of the temperature dial. The air mix door motor LH receives position commands from the front air control.
8.	Mode door motor	The mode door controls the direction the conditioned air passes through the ventilation system. Through a series of levers and gears, the mode door controls the defrost door, the foot door, and the vent door. There are 5 preset positions: VENT, B/L, FOOT, D/F, and DEF. The mode door motor receives position commands from the front air control.
9.	Front blower motor	The blower motor varies the speed at which the air flows through the ventilation system.

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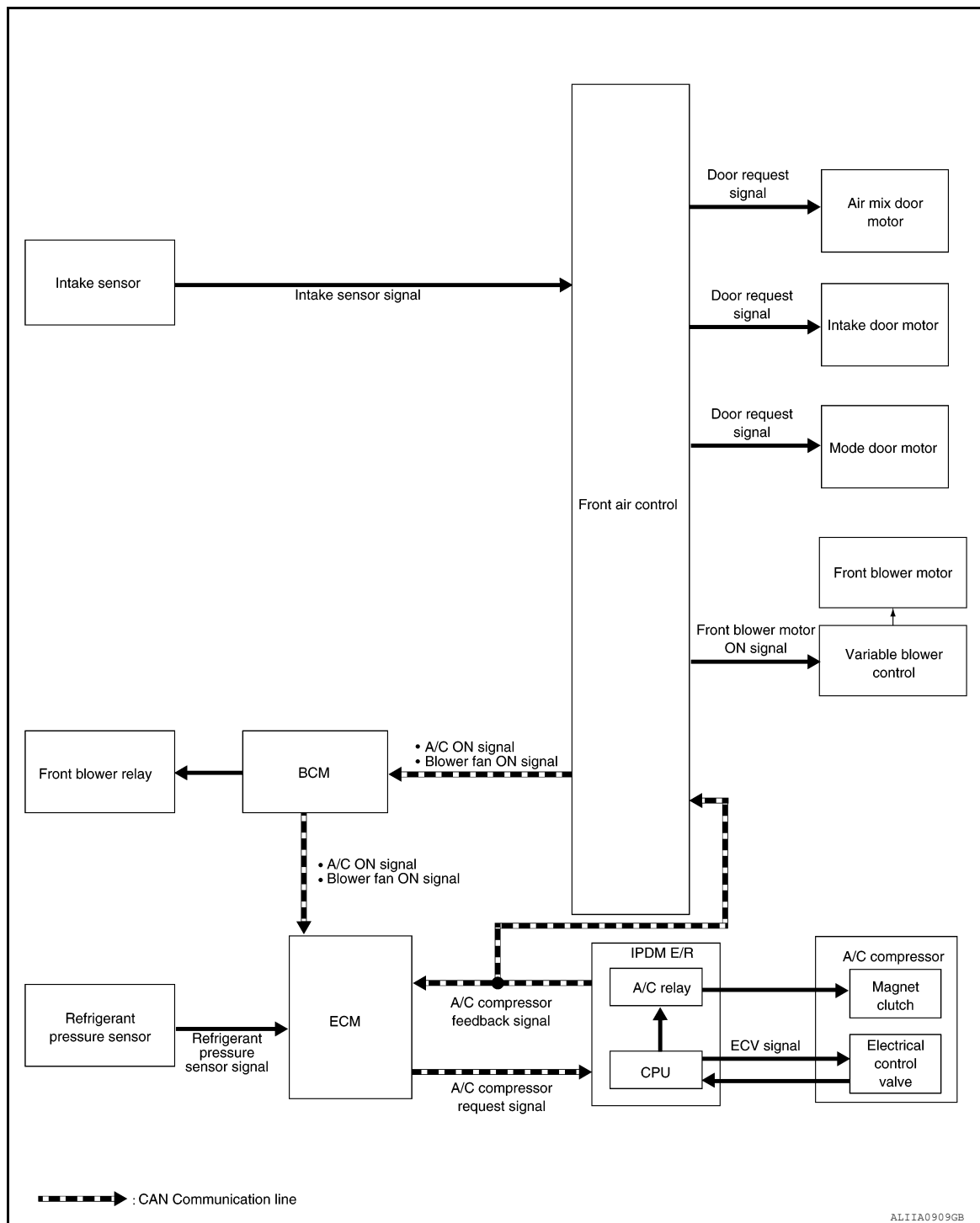
P

## SYSTEM

## System Description

INFOID:000000011276666

## SYSTEM DIAGRAM



## SYSTEM DESCRIPTION

- The manual air conditioning system is controlled by a sequence of functions from the front air control, BCM, ECM, and IPDM E/R.

Controlled by front air control:

- [HAC-119, "Air Flow Control"](#)
- [HAC-119, "Air Inlet Control"](#)
- [HAC-119, "Air Outlet Control"](#)

## &lt; SYSTEM DESCRIPTION &gt;

- [HAC-119, "Compressor Control"](#)
- [HAC-120, "Door Control"](#)
- [HAC-123, "Temperature Control"](#)

Controlled by BCM:

- Air conditioning request signal.  
Refer to [BCS-8, "BODY CONTROL SYSTEM : System Description"](#) (with Intelligent Key system) or [BCS-80, "BODY CONTROL SYSTEM : System Description"](#) (without Intelligent Key system).

Control by ECM

- Cooling fan control  
Refer to [EC-48, "COOLING FAN CONTROL : System Description"](#).
- Air conditioning cut control  
Refer to [EC-47, "AIR CONDITIONING CUT CONTROL : System Description"](#).

Control by IPDM E/R

- Relay control  
Refer to [PCS-7, "RELAY CONTROL SYSTEM : System Description"](#).
- Cooling fan control  
Refer to [EC-48, "COOLING FAN CONTROL : System Description"](#).

## Air Flow Control

INFOID:0000000011276667

## DESCRIPTION

- Front air control changes duty ratio of front blower motor control signal to control air flow continuously. When air flow is increased, duty ratio of front blower motor control signal gradually increases to prevent a sudden increase in air flow.
- In addition to manual control, air flow control is composed of fan speed control at door motor operation.

## FAN SPEED CONTROL AT DOOR MOTOR OPERATION

When mode door motor is activated while air flow is more than the specified value, front air control temporarily reduces fan speed so that mode door moves smoothly.

HAC

## Air Inlet Control

INFOID:0000000011276668

The intake door position is automatically controlled in MAX A/C and DEF modes. The intake door is controlled by customer input in the other modes.

## Air Outlet Control

INFOID:0000000011276669

Air outlet control is controlled by customer input. When the A/C is turned off by turning the blower control dial fully counterclockwise, the front air control retains the current selections and returns to these selections the next time the blower control dial is turned to any fan position.

**NOTE:**

If ambient temperature is excessively low, D/F is selected to prevent windshield fogging when air outlet is set to FOOT.

## Compressor Control

INFOID:0000000011276670

## DESCRIPTION

In order for the IPDM E/R to complete a compressor ON request, the following conditions must be met:

1. The BCM detects a Fan ON signal from the front air control. The front air control grounds the fan ON signal monitored by the BCM when the blower speed dial is in any of the fan speed positions.
2. The BCM detects an A/C ON signal from the front air control. The front air control grounds the A/C ON signal monitored by the BCM when:
  - The A/C switch is pressed. The A/C switch LED illuminates and the front air control grounds the A/C ON signal monitored by the BCM. Any mode control button except D/F may be selected.
  - The A/C switch is OFF, and the MAX A/C button is pressed. The A/C switch LED will automatically illuminate and the front air control grounds the A/C ON signal monitored by the BCM.
  - The A/C switch is OFF, and the mode button for either D/F or DEF is selected. The front air control grounds the A/C ON signal monitored by the BCM, but it does not illuminate the A/C switch LED

**NOTE:**

If the compressor was engaged by pressing the D/F or DEF mode buttons, and the time spent in either mode exceeds 1 minute, then the compressor stays requested, even when modes other than D/F or DEF are selected, until either:

1. The ignition switch is turned OFF.
2. The blower speed dial is turned completely counterclockwise to the OFF position.
3. The A/C switch is manually turned OFF.

In other words, the compressor ON request cannot be turned off in D/F or DEF modes.

**REFRIGERANT PRESSURE PROTECTION**

The refrigerant system is protected against excessively high- or low-pressures by the refrigerant pressure sensor, located on the liquid tank on the condenser. The refrigerant pressure sensor detects the pressure inside the refrigerant line and sends a voltage signal to the ECM. If the system pressure rises above or falls below the following values, the ECM requests the IPDM E/R to de-energize the A/C relay and disengage the compressor.

- 3.12 MPa (31.82 kg/cm<sup>2</sup>, 452.4 psi) or more (When the engine speed is less than 1,500 rpm)
- 2.74 MPa (27.95 kg/cm<sup>2</sup>, 397.3 psi) or more (When the engine speed is 1,500 rpm or more)
- 0.14 MPa (1.43 kg/cm<sup>2</sup>, 20.3 psi) or less

**PRESSURE RELIEF VALVE**

The refrigerant system is also protected by a pressure relief valve, located in the rear head of the compressor. When the pressure of refrigerant in the system increases to an abnormal level [more than 2,990 kPa (30.5 kg/cm<sup>2</sup>, 433.6 psi)], the release port on the pressure relief valve automatically opens and releases refrigerant into the atmosphere.

**COMPRESSOR OIL CIRCULATION CONTROL**

When the engine starts while the engine coolant temperature is 56°C (133°F) or less, ECM activates the compressor for approximately 6 seconds and circulates the compressor lubricant once.

**LOW TEMPERATURE PROTECTION CONTROL**

- When the intake sensor detects that the front evaporator fin temperature is 1.5°C (35°F) or less, the front air control requests the BCM to turn the compressor OFF, and stops the compressor.
- When the front evaporator fin temperature returns to 5.0°C (41°F) or more, the compressor is activated.

**OPERATING RATE CONTROL**

When the set temperature is other than fully cold or the air outlet is "VENT", "B/L" or "FOOT", the front air control controls the compressor activation depending on ambient temperature.

**Door Control**

INFOID:0000000011276671

**AIR MIX DOOR MOTOR****DESCRIPTION**

- The step motor system is adopted for air mix door motor.
- When a drive signal is input from front air control to door motor, a step motor built into the door motor rotates according to the drive signal, and then stops at the target door position.
- Rotation of motor is transmitted to air mix door (upper air mix door and lower air mix door) by link, rod and lever, then air flow temperature is switched.

**DRIVE METHOD**

- The 4 drive coils are excited in sequence in order to drive the motor.

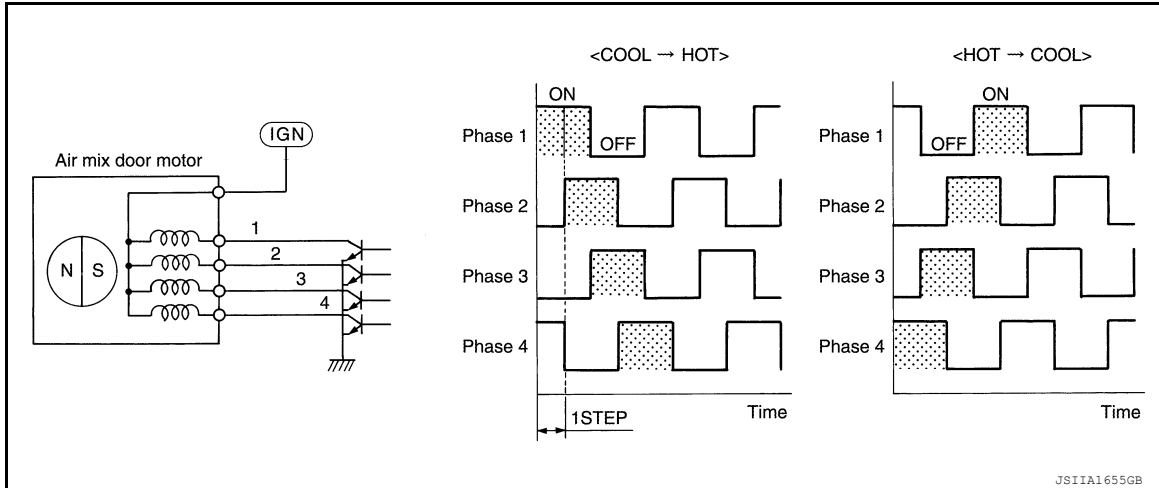


# SYSTEM

## < SYSTEM DESCRIPTION >

## [MANUAL AIR CONDITIONING]

- Direction of rotation is changeable by recomposing pattern of excitation.



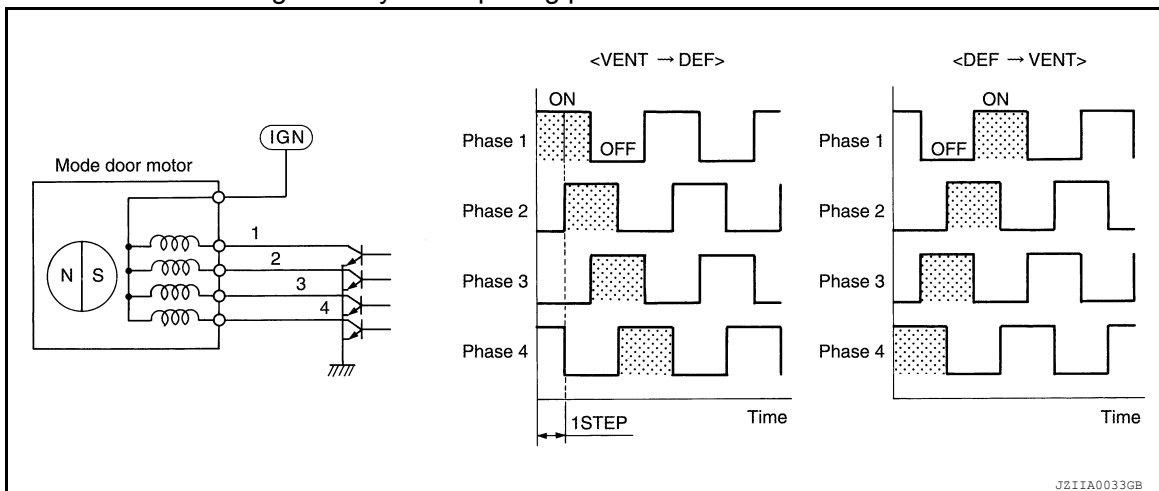
## MODE DOOR MOTOR

### DESCRIPTION

- The step motor system is adopted for mode door motor.
- When a drive signal is input from front air control to door motor, a step motor built into the door motor rotates according to the drive signal, and then stops at the target door position.
- Rotation of motor is transmitted to mode door (center ventilator and defroster door, sub defroster door, side ventilator door, and foot door) by link, rod, and lever, then air outlet is switched.

### DRIVE METHOD

- The 4 drive coils are excited in sequence in order to drive the motor.
- Direction of rotation is changeable by recomposing pattern of excitation.



## INTAKE DOOR MOTOR

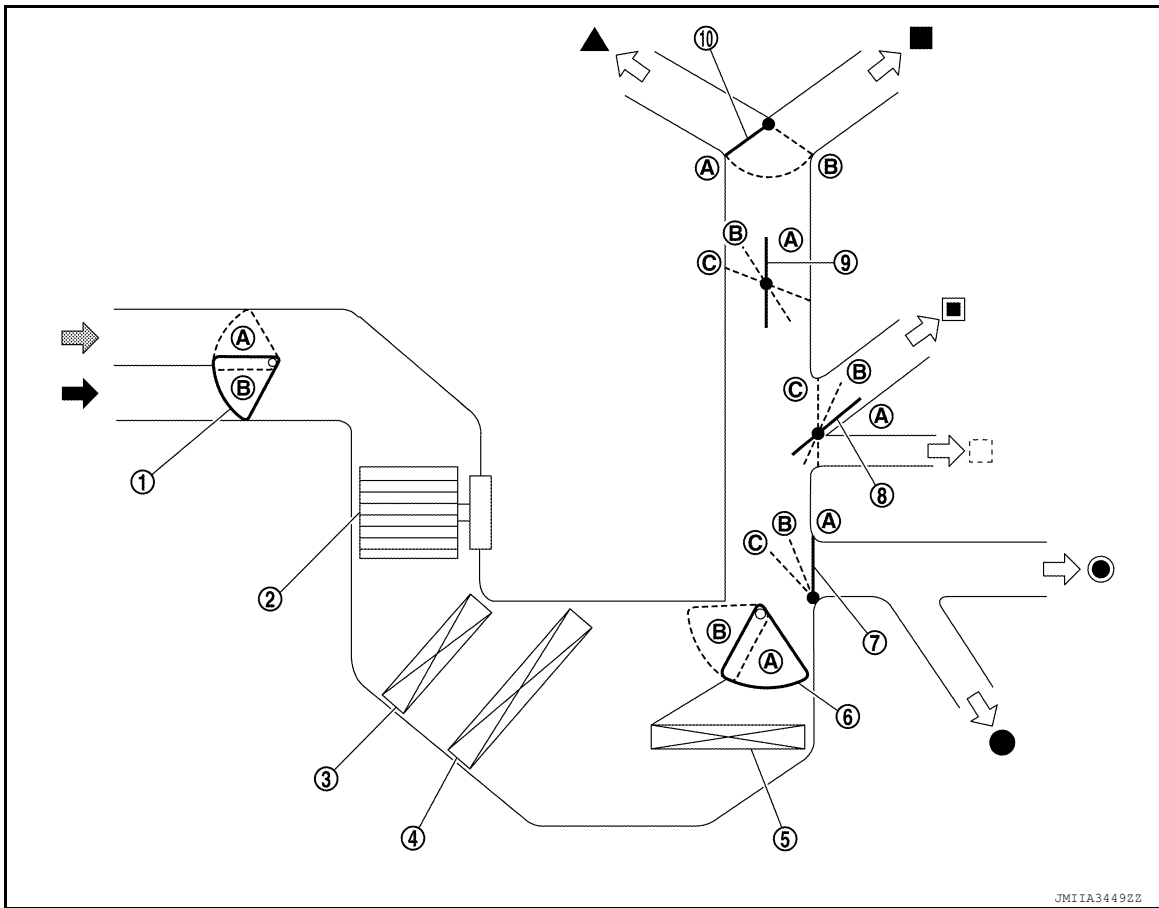
- Motor operates intake door according to control signal from front air control.
- Rotation of motor is transmitted to intake door by lever, then air inlet is switched.

## SWITCHES AND THEIR CONTROL FUNCTION

# SYSTEM

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]



- |  |                        |                          |
|--|------------------------|--------------------------|
| ① Intake door                          | ② Blower motor         | ③ Air conditioner filter |
| ④ Evaporator                           | ⑤ Heater core          | ⑥ Air mix door           |
| ⑦ Foot door                            | ⑧ Side ventilator door | ⑨ Sub defroster door     |
| ⑩ Center ventilator and defroster door |                        |                          |
| ◀ Fresh air intake                     | ◀ Recirculation air    | ◀ Discharge air          |
| ▲ Defroster                            | ■ Center ventilator    | ■ Side ventilator        |
| □ Rear ventilator                      | ● Front foot           | ● Rear foot              |

## NOTE:

The sub defroster door and side ventilator door include a permanent opening and does not fully close.






# SYSTEM

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]

Switch position			Door position					
			Mode door				Intake door	Air mix door
			Center ventilator and defroster door	Sub defroster door	Side ventilator door	Foot door		
MODE switch			(A)	(A)	(A)	(A)	—	—
			(A)	(B)	(B)	(B)		
			(B)	(C)	(C)	(C)		
			(B)	(B)	(C)	(C)		
DEF switch			(B)	(A)	(C)	(A)	(A)	
REC switch			—	—	—	—		
FRE switch							(B)	
Temperature control switch	Full cold 18°C		—	—	—	—	—	(A)
	Full hot 32°C							(B)
ON·OFF switch	OFF		(B)	(C)	(C)	(C)	—	—
								(B)

## AIR DISTRIBUTION

Discharge air flow						
MODE/DEF set- ting position	Air outlet/distribution					
	Ventilator			Foot		Defroster
	Front		Rear	Front	Rear	
	Center	Side				
	47%	38%	15%	—	—	—
	25%	34%	13%	18%	10%	—
	—	7%	4%	38%	24%	27%
	—	6%	2%	30%	17%	45%
	—	8%	2%	—	—	90%

## Temperature Control

INFOID:0000000011276672

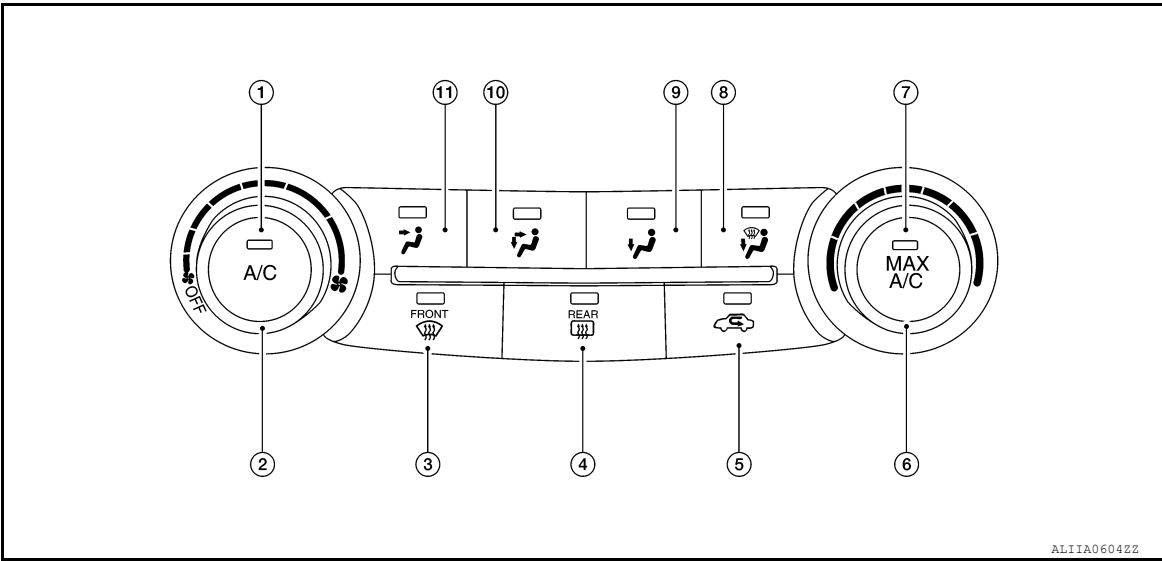
- When the ignition switch is in the ON position, the customer uses the front air control temperature control dial to set the desired temperature.
- The front air control calculates the target front air mix door opening angle depending on the selected temperature, intake temperature sensor, engine coolant temperature and rpm, and ambient temperature.
- Front air mix door is controlled depending on the comparison of current front air mix door opening angle and target front air mix door opening angle.
- Regardless of ambient temperature, the front air mix door is fixed at the fully cold position when the temperature control dial is set at the full cold position and fixed at the fully hot position when the temperature control dial is set at the full hot position.

OPERATION

Switch Name and Function

INFOID:0000000011276673

A/C Switch Assembly



- |                    |  |                             |
|--------------------|--|-----------------------------|
| 1. A/C switch      | 2. Blower control dial (with OFF switch) | 3. DEF switch               |
| 4. Rear DEF switch | 5. REC switch                            | 6. Temperature control dial |
| 7. MAX A/C switch  | 8. D/F switch                            | 9. FOOT switch              |
| 10. B/L switch     | 11. VENT switch                          |                             |

Switch Operation

A/C switch	Switches the compressor control switch indicator between ON ⇔ OFF with each press while front blower fan is activated. The circuit used by the BCM to detect an A/C ON request is grounded. <b>NOTE:</b> When front blower fan is OFF, the compressor control cannot be activated.
Blower control dial (with OFF switch)	<ul style="list-style-type: none"><li>• Blower fan speed is manually controlled with the dial for varying blower speed. When ON, the circuit used by the BCM to detect a fan ON request signal is grounded.</li><li>• Turns air conditioning system OFF.</li></ul> <b>NOTE:</b> When blower control dial is turned to any ON position the air conditioning system is activated. (Compressor control state returns to the previous state before air conditioning system was turned OFF.)
DEF switch	Switches DEF mode (switch indicator) between ON ⇔ OFF with each press. <ul style="list-style-type: none"><li>• When DEF mode is turned ON, the air conditioning system changes to the following state.<ul style="list-style-type: none"><li>- Air inlet: Fresh air intake</li><li>- Air outlet: DEF</li><li>- Blower fan: Manual setting.</li><li>- Compressor: ON</li></ul></li><li>• When DEF mode is turned OFF, the air conditioning system state returns to the previous state before DEF mode was selected, but the following state is continued:<ul style="list-style-type: none"><li>- Air inlet: Fresh air intake</li><li>- Compressor: ON</li></ul></li></ul> <b>NOTE:</b> When front blower fan is OFF, DEF cannot be activated.

# OPERATION

## < SYSTEM DESCRIPTION >

## [MANUAL AIR CONDITIONING]

MAX A/C switch	<p>Switches the MAX A/C and compressor control switch indicators between ON ⇔ OFF with each press while front blower fan is activated.</p> <ul style="list-style-type: none"> <li>• When MAX A/C mode is turned ON, the air conditioning system changes to the following state. <ul style="list-style-type: none"> <li>- Air inlet: Recirculation air intake</li> <li>- Air outlet: Manual setting</li> <li>- Blower fan: Manual setting.</li> <li>- Compressor: ON</li> </ul> </li> <li>• When MAX A/C mode is turned OFF, the air conditioning system state returns to the previous state before MAX A/C mode is selected. But, the following state is changed: <ul style="list-style-type: none"> <li>- Air inlet: Fresh air intake</li> <li>- Compressor: ON</li> </ul> </li> </ul> <p><b>NOTE:</b> When front blower fan is OFF, the compressor control cannot be activated.</p>
MODE switches	<p>Selects air outlet from VENT, B/L, FOOT, and D/F.</p> <p><b>NOTE:</b> When the air conditioning system is OFF, the air outlet can still be selected.</p>
REC switch	<ul style="list-style-type: none"> <li>• Air inlet is selected to fresh air intake (REC) by pressing this switch.</li> <li>- REC indicator: ON</li> </ul> <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>• When the air conditioning system is OFF, the air inlet can still be selected.</li> <li>• When D/F mode or DEF is selected, the REC button is disabled.</li> </ul>
Temperature control dial	<ul style="list-style-type: none"> <li>• Selects desired temperature between full cold and full hot.</li> <li>- Clockwise rotation: Temperature increases.</li> <li>- Counterclockwise rotation: Temperature decreases.</li> </ul>

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HAC

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## DIAGNOSIS SYSTEM (HVAC)

### Description

INFOID:0000000011276674

Air conditioning system performs self-diagnosis, operation check, function diagnosis, and various settings using diagnosis function of each control unit.

ECU	Diagnostic item (CONSULT)	
Front air control	 HVAC	Self Diagnostic Result
		Data Monitor
		Active Test
		Work support
ECM	 ENGINE	Self Diagnostic Result
		Data Monitor
IPDM E/R	 IPDM E/R	Self Diagnostic Result
		Data Monitor

### CONSULT Function (HVAC)

INFOID:0000000011276675

CONSULT can display each diagnosis item using the diagnosis test modes as shown.

#### CONSULT application items

Diagnosis mode	Description
Self Diagnostic Result	Displays the diagnosis results judged by A/C auto amp.
Data Monitor	Displays A/C auto amp. input/output data in real time.
Work support	Changes the setting for each system function.
Active Test	The signals used to activate each device are forcibly supplied from front air control.
ECU Identification	Displays the A/C auto amp. number.

### SELF DIAGNOSTIC RESULT

Refer to [HAC-135, "DTC Index"](#).

#### Display Item List

DTC	Items (CONSULT screen terms)	Diagnostic item is detected when...	Possible cause
U1000	CAN COMM CIRCUIT	When A/C auto amp. is not transmitting or receiving CAN communication signal for 2 or more seconds.	CAN communication system
U1010	CONTROL UNIT (CAN)	When detecting error during the initial diagnosis of CAN controller of front air control.	Front air control
B24A4	INTAKE TEMP SEN	Short or open circuit of the intake temperature sensor signal.	<ul style="list-style-type: none"> <li>Intake sensor</li> <li>Front air control</li> <li>Harness and connector (Intake sensor circuit is open, or there is a short in the circuit)</li> </ul>
B24BB	AIRMIX ACTR	Short or open circuit of air mix door motor drive signal.	<ul style="list-style-type: none"> <li>Air mix door motor LH</li> <li>Front air control</li> <li>Harness and connector (Air mix door motor is open or shorted)</li> </ul>

# DIAGNOSIS SYSTEM (HVAC)

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]

DTC	Items (CONSULT screen terms)	Diagnostic item is detected when...	Possible cause
B24B7	INTAKE ACTR	Short or open circuit of intake door motor drive signal.	<ul style="list-style-type: none"> <li>Intake door motor</li> <li>Front air control</li> <li>Harness and connector (Intake door motor is open or shorted)</li> </ul>
B27B9	MODE DOOR ACTR	Short or open circuit of mode door motor drive signal.	<ul style="list-style-type: none"> <li>Mode door motor</li> <li>Front air control</li> <li>Harness and connector (Mode door motor is open or shorted)</li> </ul>

## DATA MONITOR

Display item list

Monitor item [Unit]	Description
AMB TEMP SEN [°C]	Ambient sensor value converted from ambient sensor signal received from ambient sensor
INT TEMP SEN [°C]	Intake sensor value converted from intake sensor signal received from intake sensor
AMB SEN CAL [°]	Ambient sensor value calculated by A/C auto amp.
INT TEMP CAL [°C]	Intake sensor value calculated by A/C auto amp.
COMP REQ SIG [On/Off]	Displays A/C switch ON/OFF status transmitted to other units via CAN communication
COMP ECV DUTY [%]	Duty ratio of ECV (electrical control valve) judged by A/C amp.
FAN REQ SIG [On/Off]	Displays blower switch ON/OFF status transmitted to other units via CAN communication
FAN DUTY [%]	Duty ratio of blower motor judged by A/C auto amp.
VEHICLE SPEED [km/h (mph)]	Vehicle speed signal value received from meter via CAN communication

## WORK SUPPORT

Work item	Description	Reference
Door Motor Starting Position Reset	Starting position reset of air mix door motor and mode door motor can be performed.	<a href="#">HAC-152, "Work Procedure"</a>
TARGET EVAPORATOR TEMP UPPER LIMIT SETTING	Set the target evaporator upper temperature limit.	<a href="#">HAC-151, "Target Evaporator Temp Upper Limit"</a>

### NOTE:

When the battery cable is disconnected from the negative terminal or when the battery voltage becomes 10V or less, the setting of WORK SUPPORT may be cancelled.

## ACTIVE TEST

Test item	Description
HVAC TEST	The operation check of A/C system can be performed by selecting the mode. Refer to the following table for the conditions of each mode.

### HVAC TEST

	Test item						
	MODE 1	MODE 2	MODE 3	MODE 4	MODE 5	MODE 6	MODE 7
Mode door position	VENT	VENT	B/L	B/L	D/F1	D/F2	DEF
Intake door position	REC	REC	20%FRE	20%FRE	FRE	FRE	FRE
Air mix door position	FULL COLD	FULL COLD	FULL COLD	FULL HOT	FULL HOT	FULL HOT	FULL HOT

## DIAGNOSIS SYSTEM (HVAC)

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]

	Test item						
	MODE 1	MODE 2	MODE 3	MODE 4	MODE 5	MODE 6	MODE 7
Blower motor (Applied voltage)	35%	35%	60%	60%	90%	90%	35%
A/C compressor (Magnet clutch)	ON	ON	ON	ON	OFF	OFF	ON
ECV duty	80%	80%	40%	40%	0%	0%	90%

**NOTE:**

Perform the inspection of each output device after starting the engine, because the A/C compressor has been operating.



## DIAGNOSIS SYSTEM (IPDM E/R)

## CONSULT Function (IPDM E/R)

INFOID:0000000011379683

## APPLICATION ITEM

CONSULT performs the following functions via CAN communication with IPDM E/R.

Direct Diagnostic Mode	Description
ECU Identification	The IPDM E/R part number is displayed.
Self Diagnostic Result	The IPDM E/R self diagnostic results are displayed.
Data Monitor	The IPDM E/R input/output data is displayed in real time.
Active Test	The IPDM E/R activates outputs to test components.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

## ECU IDENTIFICATION

The IPDM E/R part number is displayed.

## SELF DIAGNOSTIC RESULT

Refer to [PCS-22, "DTC Index"](#).

## DATA MONITOR

Monitor Item [Unit]	Description
REVERSE SIGNAL [Open/Close]	Indicates condition of transmission range switch R (Reverse) position.
IGN RELAY [Open/Close]	Indicates condition of ignition relay-1.
PUSH SW [Open/Close]	Indicates condition of push-button ignition switch.
INTERLOCK/PNP SW [Open/Close]	Indicates condition of transmission range switch P (Park) and N (Neutral) positions.
OIL PRESSURE SW [Open/Close]	Indicates condition of oil pressure switch.
HOOD SW [Open/Close]	Indicates condition of hood switch.
COMPRESSOR [OFF/ON]	Indicates condition of A/C compressor.
HORN RELAY [OFF/ ON]	Indicates condition of horn relay.
COOLING FAN [OFF/ON]	Indicates condition of cooling fan relay-1.
FRONT WIPER HI/LO RELAY [OFF/ON]	Indicates condition of front wiper high relay.
FRONT WIPER RELAY [OFF/ON]	Indicates condition of front wiper relay.
IGN RELAY OFF STATUS [OFF/ON]	Indicates condition of ignition relay-1 OFF status.
IGN RELAY ON STATUS [OFF/ON]	Indicates condition of ignition relay-1 ON status.
COOLING FAN RELAY 1 [OFF/ON]	Indicates condition of cooling fan relay-1.
STARTER RELAY [OFF/ON]	Indicates condition of starter relay.
COMP ECV DUTY [%]	Indicates condition of A/C compressor.
COOLING FAN RELAY 2 [%]	Indicates condition of cooling fan relay-2.
FR FOG LAMP LH [%]	Indicates condition of front fog lamp LH.
FR FOG LAMP RH [%]	Indicates condition of front fog lamp RH.
PARKING LAMP [%]	Indicates condition of parking lamp.
TAIL LAMP LH [%]	Indicates condition of tail lamp LH.
TAIL LAMP RH [%]	Indicates condition of tail lamp RH.
DAYTIME RUNNING LIGHT LH [%]	Indicates condition of daytime running light LH.
DAYTIME RUNNING LIGHT RH [%]	Indicates condition of daytime running light RH.
HEADLAMP (HI) LH [%]	Indicates condition of headlamp high beam LH.

# DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]

Monitor Item [Unit]	Description
HEADLAMP (HI) RH [%]	Indicates condition of headlamp high beam RH.
HEADLAMP (LO) LH [%]	Indicates condition of headlamp low beam LH.
HEADLAMP (LO) RH [%]	Indicates condition of headlamp low beam RH.
A/C RELAY STUCK [NG/OK]	Indicates condition of A/C relay.
A/C RELAY [Off/On]	Indicates condition of A/C relay.
COMP ECV STATUS [NG/OK]	Indicates condition of A/C compressor.
VEHICLE SECURITY HORN [Off/On]	Indicates condition of horn relay.
BATTERY CURRENT SENSOR [NG/OK]	Indicates condition of battery current sensor.
FRONT FOG LAMP [Off/On]	Indicates condition of front fog lamps.
COMP ECV CURRENT [A]	Indicates condition of A/C compressor current.
BATTERY VOLTAGE [V]	Indicates condition of battery voltage.
COOLING FAN DUTY [%]	Indicates condition of cooling fans.
HOOD SW (CAN) [OPEN/CLOSE]	Indicates condition of hood switch.
FRONT WIPER [STOP/LOW/HIGH]	Indicates condition of front wiper motor.
FR WIPER STOP POSITION [STOP P/ACTIVE P]	Indicates condition of front wiper motor stop.
HEADLAMP (HI) [Off/On]	Indicates condition of headlamp high beams.
HEADLAMP (LO) [Off/On]	Indicates condition of headlamp low beams.
IGNITION RELAY STATUS [Off/On]	Indicates condition of ignition relay-1.
IGN RELAY MONITOR [Off/On]	Indicates condition of ignition relay-1 feedback.
IGNITION POWER SUPPLY [Off/On]	Indicates condition of ignition relay-1.
INTERLOCK/PNP SW (CAN) [Off/On]	Indicates condition of transmission range switch P (Park) and N (Neutral) positions.
PUSH-BUTTON IGN SW (CAN) [Off/On]	Indicates condition of push-button ignition switch.
TAIL LAMP [Off/On]	Indicates condition of tail lamps.
REVERSE SIGNAL (CAN) [Off/On]	Indicates condition of transmission range switch R (Reverse) position.
ST&ST CONT RELAY STATUS [Off/ST R On]	Indicates condition of starter cut and starter relays.
STARTER MOTOR STATUS [Off/On]	Indicates condition of starter motor.
STARTER RELAY (CAN) [LOW/HIGH]	Indicates condition of starter relay.
IPDM NOT SLEEP [NO RDY/RDY]	Indicates condition of IPDM E/R sleep status.
AFTER COOLING TIME [No request/Request]	Indicates condition of cooling fan request.
AFTER COOLING SPEED [%]	Indicates condition of cooling fans.
COOLING FAN TYPE [NISSAN/RENAULT]	Indicates cooling fan type.
COMPRESSOR REQ1 [Off/On]	Indicates condition of A/C compressor request.
VHCL SECURITY HORN REQ [Off/On]	Indicates condition of horn relay request.
DTRL REQ [Off/On]	Indicates condition of daytime running light request.
SLEEP/WAKE UP [WAKEUP/SLEEP]	Indicates condition of IPDM E/R sleep/wake.
CRANKING ENABLE-TCM [NG/OK]	Indicates condition of crank enable from TCM.
CRANKING ENABLE-ECM [NG/OK]	Indicates condition of crank enable from ECM.
CAN DIAGNOSIS [NG/OK]	Indicates condition of CAN diagnosis.
FRONT FOG LAMP REQ [Off/On]	Indicates condition of front fog lamp request.
HIGH BEAM REQ [Off/On]	Indicates condition of headlamp high beam request.
HORN CHIRP [Off/On]	Indicates condition of horn relay request.
COOLING FAN REQ [%]	Indicates condition of cooling fan request.
ENGINE STATUS [STOP/RUN/IDLING]	Indicates condition of engine status.

## DIAGNOSIS SYSTEM (IPDM E/R)

### < SYSTEM DESCRIPTION >

### [MANUAL AIR CONDITIONING]

Monitor Item [Unit]	Description
TURN SIGNAL REQ [Off/LH/RH]	Indicates condition of turn signal request.
FR WIPER REQ [RETURN/LOW/HIGH]	Indicates condition of front wiper motor request.
SHIFT POSITION [P/R/N/D/L]	Indicates condition of transmission range switch positions.
LOW BEAM REQ [Off/On]	Indicates condition of headlamp low beam request.
POSITION LIGHT REQ [Off/On]	Indicates condition of parking lamp request.
COMPRESSOR REQ2 [Off/On]	Indicates condition of A/C compressor request.
IGNITION SW [Off/On]	Indicates condition of ignition switch.
VEHICLE SPEED (METER) [mph/km/h]	Indicates vehicle speed.
BAT DISCHARGE COUNT [0-100]	Indicates condition of battery discharge.
BATTERY STATUS [NG/OK]	Indicates battery status.

### ACTIVE TEST

Test item	Description
HORN	This test is able to check horn operation [Off/On].
FRONT WIPER	This test is able to check wiper motor operation [Off/Low/High].
COMPRESSOR	This test is able to check A/C compressor operation [Off/On].
COOLING FAN (DUAL)	This test is able to check cooling fan operation [Off/LO/HI].
HEADLAMP (HI)	This test is able to check headlamp high beam operation [Off/3/5].
HEADLAMP (LO)	This test is able to check headlamp low beam operation [Off/3/5].
FRONT FOG LAMP	This test is able to check front fog lamp operation [Off/3/5].
DAYTIME RUNNING LAMP	This test is able to check daytime running lamp operation [Off/3/5].
PARKING LAMP	This test is able to check parking lamp operation [Off/3/5].
TAIL LAMP	This test is able to check tail lamp operation [Off/3/5].

### CAN DIAG SUPPORT MNTR

Refer to [LAN-14, "CAN Diagnostic Support Monitor"](#).

## ECU DIAGNOSIS INFORMATION

## FRONT AIR CONTROL

## Reference Value

INFOID:0000000011276677

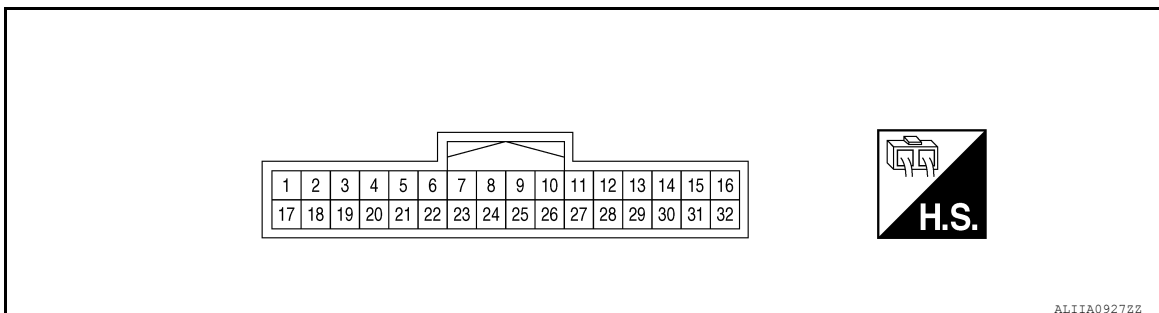
## CONSULT DATA MONITOR REFERENCE VALUES

**NOTE:**

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor item	Condition		Value/Status
AMB TEMP SEN	Ignition switch ON		Equivalent to ambient temperature
INT TEMP SEN	Ignition switch ON		Values depending on evaporator fin temperature
AMB SEN CAL	Ignition switch ON		Equivalent to ambient temperature
INT TEMP CAL	Ignition switch ON		Values depending on evaporator fin temperature
COMP REQ SIG	Engine: Run at idle after warming up	A/C switch: ON (Compressor operation status)	On
		A/C switch: OFF	Off
COMP ECV DUTY	Engine: Run at idle after warming up	A/C switch: ON (Compressor operation status)	1 - 100%
		A/C switch: OFF	0%
FAN REQ SIG	Engine: Run at idle after warming up	Blower motor: ON	On
		Blower motor: OFF	Off
FAN DUTY	Engine: Run at idle after warming up	Blower motor: ON	1 - 100
		Blower motor: OFF	0
VEHICLE SPEED	Turn drive wheels and compare CONSULT value with the speedometer indication.		Equivalent to speedometer reading

## TERMINAL LAYOUT



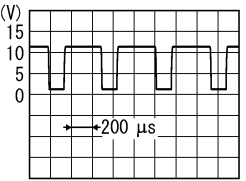
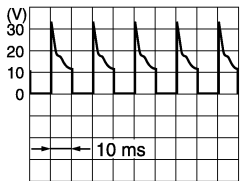
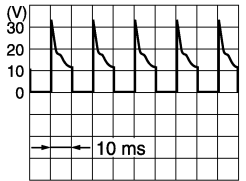
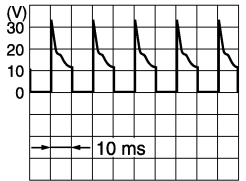
ALIIA09272Z

## PHYSICAL VALUES

# FRONT AIR CONTROL

< ECU DIAGNOSIS INFORMATION >

[MANUAL AIR CONDITIONING]

Terminal No. (Wire color)		Description		Condition	Value
+	-	Signal name	Input/ Output		
1 (G)	19 (B)	Power transistor control signal	Output	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Blower motor: 1st speed (manual)</li> </ul>	 2JIA0863J
3 (SB)	19 (B)	Ignition power supply	Input	Ignition switch ON	Battery voltage
4 (V)	19 (B)	Ignition power supply	Output	Ignition switch ON	Battery voltage
7 (L)	19 (B)	CAN-H	Input/ Output	Ignition switch ON	—
8 (W)	19 (B)	ACTR V	Output	Ignition switch ON	Battery voltage
9 (BG)	19 (B)	A/MIX drive 1	Output	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Right after the temperature control switch (passenger side) operation</li> </ul>	 JPIIA1647GB
10 (Y)	19 (B)	A/MIX drive 2			
11 (V)	19 (B)	INTAKE drive 1	Output	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Right after the Intake switch operation</li> </ul>	 JPIIA1647GB
12 (GR)	19 (B)	INTAKE drive 2			
13 (LG)	19 (B)	MODE drive 1	Output	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Right after the MODE switch operation</li> </ul>	 JPIIA1647GB
14 (SB)	19 (B)	MODE drive 2			

A

B

C

D

E

F

G

H

HAC

J

K

L

M

N

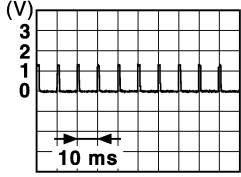
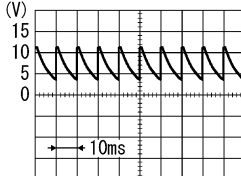

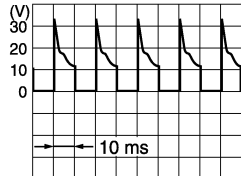

O

P

# FRONT AIR CONTROL

< ECU DIAGNOSIS INFORMATION >

[MANUAL AIR CONDITIONING]

Terminal No. (Wire color)		Description		Condition	Value
+	—	Signal name	Input/ Output		
17 (W)	19 (B)	Blower fan ON signal	Output	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Blower motor: OFF</li> </ul>	 JMI1A0941GB
				<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Blower motor: ON</li> </ul>	 PK1B4960J
18 (BR)	19 (B)	Sensor ground	—	Ignition switch ON	0 – 0.1 V
19 (B)	Ground	Ground	—	Ignition switch ON	0 – 0.1 V
21 (BG)	19 (B)	Intake sensor signal	Input	Ignition switch ON	0 – 4.8 V Output voltage varies with evaporator fin temperature
23 (R)	19 (B)	CAN-L	Input/ Output	Ignition switch ON	—
24 (SB)	19 (B)	ACTR V	Output	Ignition switch ON	Battery voltage
25 (GR)	19 (B)	A/MIX drive 3	Output	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Right after the temperature control switch (passenger side) operation</li> </ul>	 JPI1A1647GB
26 (BR)	19 (B)	A/MIX drive 4			
27 (LG)	19 (B)	INTAKE drive 3	Output	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Right after the intake switch operation</li> </ul>	 JPI1A1647GB
28 (W)	19 (B)	INTAKE drive 4			
29 (BG)	19 (B)	MODE drive 3	Output	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Right after the MODE switch operation</li> </ul>	 JPI1A1647GB
30 (G)	19 (B)	MODE drive 4			

# FRONT AIR CONTROL

< ECU DIAGNOSIS INFORMATION >

[MANUAL AIR CONDITIONING]

## DTC Inspection Priority Chart

INFOID:0000000011276678

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

Priority	Detected items (DTC)
1	<ul style="list-style-type: none"><li>• U1000: CAN COMM CIRCUIT</li><li>• U1010: CONTROL UNIT (CAN)</li></ul>
2	<ul style="list-style-type: none"><li>• B24A4: INTAKE TEMP SEN</li><li>• B24BB: AIRMIX ACTR</li><li>• B24B7: INTAKE ACTR</li><li>• B24B9: MODE ACTR</li></ul>

## DTC Index

INFOID:0000000011276679

DTC	Items (CONSULT screen terms)	Reference
U1000	CAN COMM CIRCUIT	<a href="#">HAC-53, "DTC Logic"</a>
U1010	CONTROL UNIT (CAN)	<a href="#">HAC-54, "DTC Logic"</a>
B24A4	INTAKE SENSOR	<a href="#">HAC-58, "DTC Logic"</a>
B24B7	INTAKE DOOR MOTOR	<a href="#">HAC-77, "DTC Logic"</a>
B24B9	MODE DOOR MOTOR	<a href="#">HAC-80, "DTC Logic"</a>
B24BB	LEFT AIR MIX DOOR MOTOR	<a href="#">HAC-67, "DTC Logic"</a>

HAC

## ECM, IPDM E/R, BCM

## List of ECU Reference

INFOID:0000000011276680

ECU	Reference
ECM	<a href="#">EC-80, "Reference Value"</a>
	<a href="#">EC-92, "Fail Safe"</a>
	<a href="#">EC-95, "DTC Inspection Priority Chart"</a>
	<a href="#">EC-96, "DTC Index"</a>
IPDM E/R	<a href="#">PCS-14, "Reference Value"</a>
	<a href="#">PCS-21, "Fail-safe"</a>
	<a href="#">PCS-22, "DTC Index"</a>
BCM (with Intelligent Key system)	<a href="#">BCS-28, "Reference Value"</a>
	<a href="#">BCS-46, "Fail Safe"</a>
	<a href="#">BCS-46, "DTC Inspection Priority Chart"</a>
	<a href="#">BCS-47, "DTC Index"</a>
BCM (without Intelligent Key system)	<a href="#">BCS-96, "Reference Value"</a>
	<a href="#">BCS-107, "Fail Safe"</a>
	<a href="#">BCS-107, "DTC Inspection Priority Chart"</a>
	<a href="#">BCS-108, "DTC Index"</a>



# MANUAL AIR CONDITIONING SYSTEM

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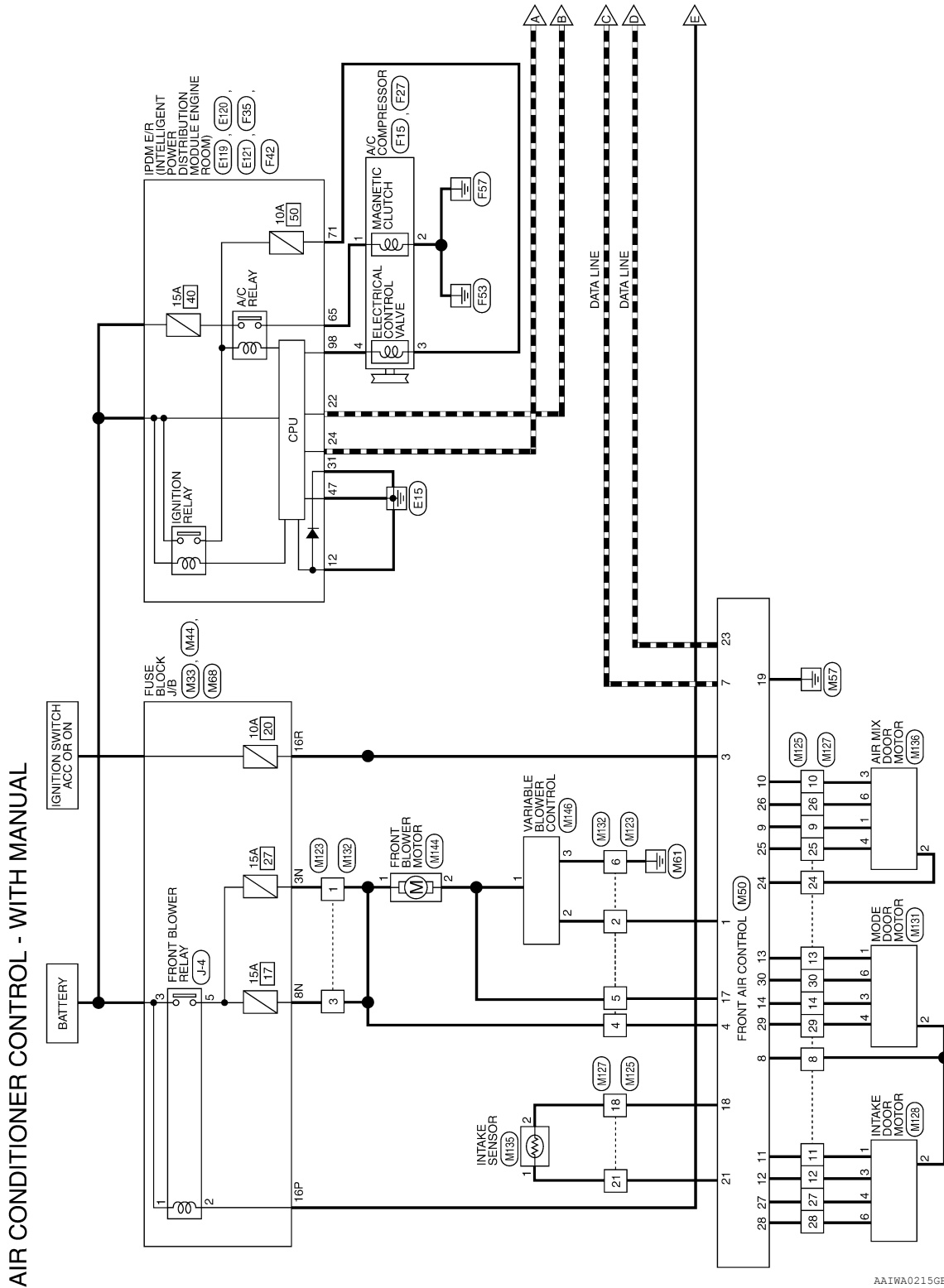
[MANUAL AIR CONDITIONING]

## WIRING DIAGRAM

### MANUAL AIR CONDITIONING SYSTEM

#### Wiring Diagram

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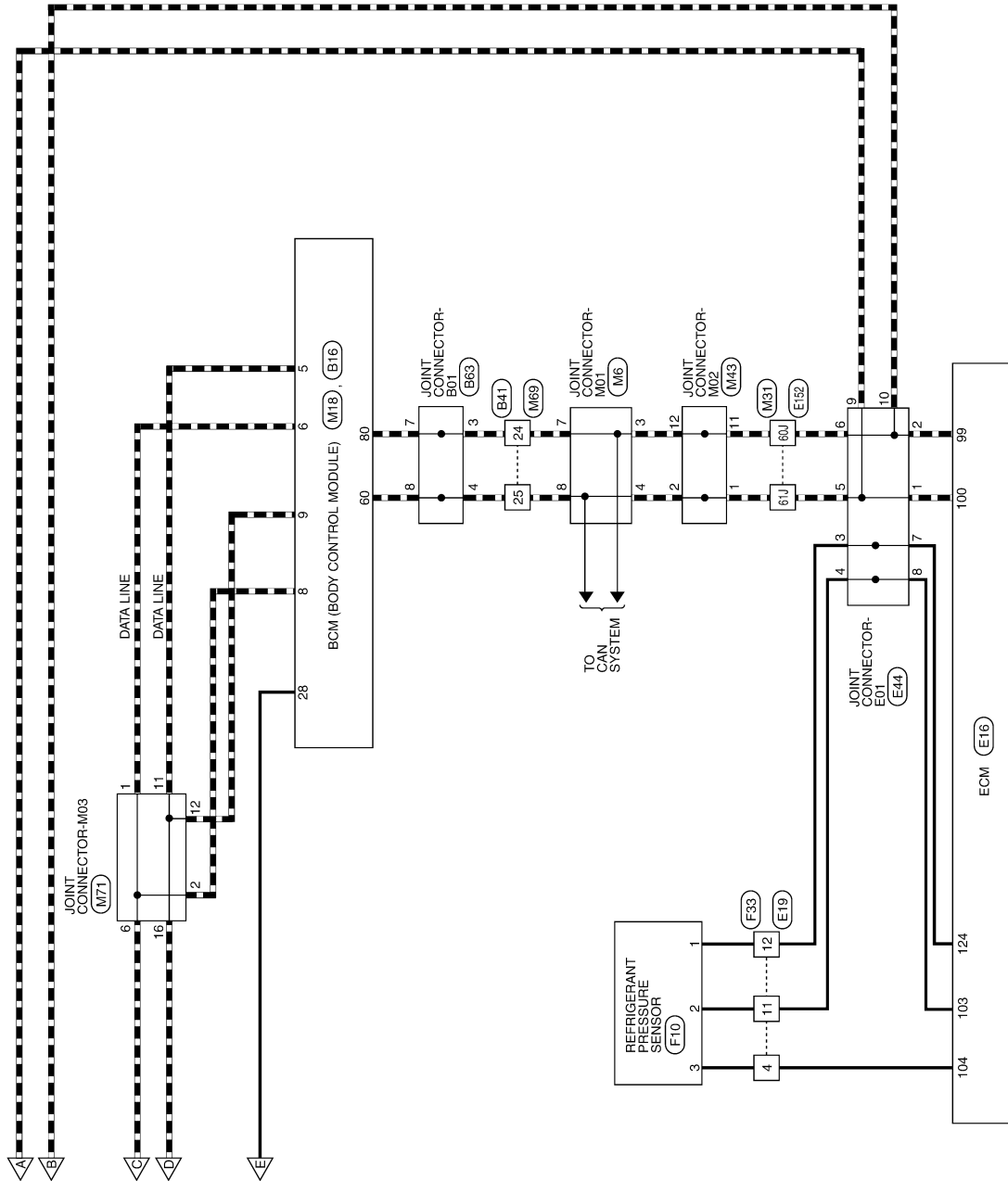


AAIWA0215GB

# MANUAL AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[MANUAL AIR CONDITIONING]



AAIWA0216GB

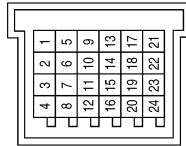
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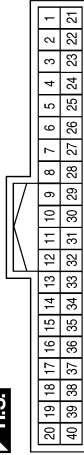
[MANUAL AIR CONDITIONING]

## AIR CONDITIONER CONTROL CONNECTORS - WITH MANUAL

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY

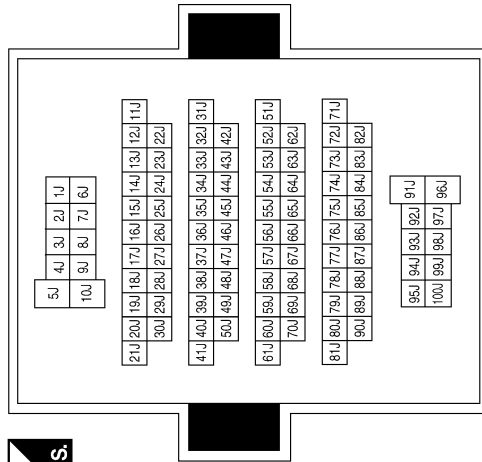


Terminal No.	Color of Wire	Signal Name
9	R	CAN-L
28	LAW	O IGN2 RL

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

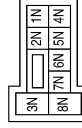
Terminal No.	Color of Wire	Signal Name
5	R	CAN-L
6	L	CAN-H
8	L	CAN-H

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
60J	P	-
61J	L	-

Connector No.	M33
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3N	Y	-
8N	SB	-

AA11A0543GB

A  
B  
C  
D  
E  
F  
G  
H  
HAC  
J  
K  
L  
M  
N  
O  
P

# MANUAL AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

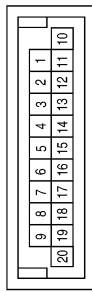
[MANUAL AIR CONDITIONING]

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
16P	LA/W	—

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
1	L	—
2	L	—
11	P	—
12	P	—

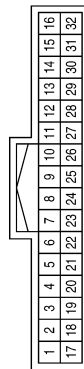
Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
16R	GR	—

Terminal No.	Color of Wire	Signal Name
13	LG	MODE1
14	SB	MODE2
15	—	—
16	—	—
17	W	FR FAN F/B
18	BR	INTAKE SEN GND
19	B	GND
20	—	—
21	BG	INTAKE SEN
22	—	—
23	R	CAN-L
24	SB	12V PROT MOTOR
25	GR	MIX DR3
26	BR	MIX DR4
27	LG	INTAKE3
28	W	INTAKE4
29	BG	MODE3
30	G	MODE4
31	—	—
32	—	—

Connector No.	M50
Connector Name	FRONT AIR CONTROL
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	G	FR FAN OUT
2	—	—
3	SB	IGN TEMPO
4	V	IGN2
5	—	—
6	—	—
7	L	CAN-H
8	W	12V PROT MOTOR
9	BG	MIX DR1
10	Y	MIX DR2
11	V	INTAKE1
12	GR	INTAKE2

AA1IA0544GB

# MANUAL AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[MANUAL AIR CONDITIONING]

Connector No.	M123
Connector Name	WIRE TO WIRE
Connector Color	WHITE



6	5	4
3	2	1

Terminal No.	Color of Wire	Signal Name
1	Y	-
2	G	-
3	SB	-
4	V	-
5	W	-
6	B	-

Connector No.	M71
Connector Name	JOINT CONNECTOR-M03
Connector Color	BLUE



--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
6	L	-
11	R	-
12	R	-
16	R	-

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	M125
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
8	W	-
9	BG	-
10	Y	-
11	V	-
12	GR	-
13	LG	-
14	SB	-

Terminal No.	Color of Wire	Signal Name
18	BR	-
21	BG	-
24	SB	-
25	GR	-
26	BR	-
27	LG	-
28	W	-
29	BG	-
30	G	-

AA1IA0410GB

A  
B  
C  
D  
E  
F  
G  
H  
HAC  
J  
K  
L  
M  
N  
O  
P

# MANUAL AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[MANUAL AIR CONDITIONING]

Connector No.	M127
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
8	W	-
9	L	-
10	W	-
11	L	-
12	R	-
13	L	-
14	BR	-
18	BR	-
21	BG	-

Terminal No.	Color of Wire	Signal Name
24	G	-
25	R	-
26	BR	-
27	BR	-
28	W	-
29	R	-
30	G	-

Connector No.	M128
Connector Name	INTAKE DOOR MOTOR
Connector Color	BLACK



1	4
2	5
3	6

Terminal No.	Color of Wire	Signal Name
1	L	-
2	W	-
3	R	-
4	BR	-
6	W	-

Connector No.	M131
Connector Name	MODE DOOR MOTOR
Connector Color	BLACK



1	4
2	5
3	6

Terminal No.	Color of Wire	Signal Name
1	L	-
2	W	-
3	BR	-
4	R	-
6	G	-

Connector No.	M132
Connector Name	WIRE TO WIRE
Connector Color	WHITE



4	5	6
1	2	3

Terminal No.	Color of Wire	Signal Name
1	Y	-
2	G	-
3	SB	-
4	V	-
5	W	-
6	B	-

Connector No.	M135
Connector Name	INTAKE SENSOR
Connector Color	GRAY



1	2
---	---

Terminal No.	Color of Wire	Signal Name
1	BG	-
2	BR	-

AA11A0411GB

# MANUAL AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[MANUAL AIR CONDITIONING]

Connector No.	M146
Connector Name	VARIABLE BLOWER CONTROL (WITH MANUAL A/C)
Connector Color	GRAY



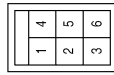
Terminal No.	Color of Wire	Signal Name
1	R	-
2	G	-
3	B	-
4	-	-

Connector No.	M144
Connector Name	FRONT BLOWER MOTOR
Connector Color	GRAY



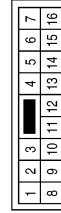
Terminal No.	Color of Wire	Signal Name
1	Y	-
2	R	-

Connector No.	M136
Connector Name	AIR MIX DOOR MOTOR
Connector Color	BLACK



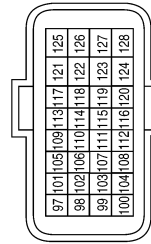
Terminal No.	Color of Wire	Signal Name
1	L	-
2	G	-
3	W	-
4	R	-
6	BR	-

Connector No.	E19
Connector Name	WIRE TO WIRE
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
4	R	-
11	Y	-
12	W	-

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
99	P	CAN-L
100	L	CAN-H
103	Y	REFRIGERANT PRESSURE SENSOR
104	R	AVCC1-PDPRES
124	W	GNDA-PDPRES

AA1IA0546GB

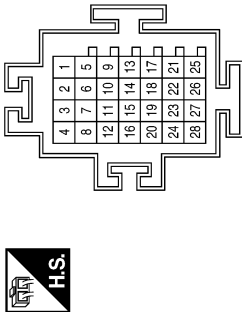
A  
B  
C  
D  
E  
F  
G  
H  
HAC  
J  
K  
L  
M  
N  
O  
P

# MANUAL AIR CONDITIONING SYSTEM

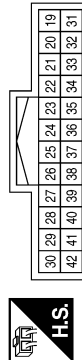
< WIRING DIAGRAM >

[MANUAL AIR CONDITIONING]

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
31	B	2ND SIGNAL GROUND

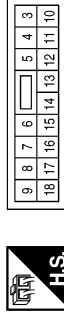
Terminal No.	Color of Wire	Signal Name
1	L	-
2	P	-
3	W	-
4	Y	-
5	L	-
6	P	-
7	W	-
8	Y	-
9	L	-
10	P	-

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



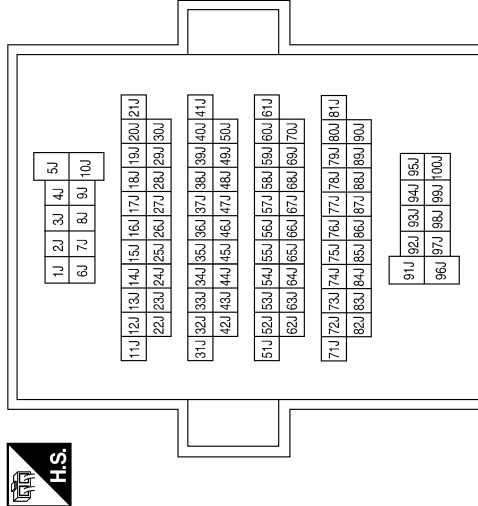
Terminal No.	Color of Wire	Signal Name
47	B	POWER GROUND

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
12	B	SIGNAL GROUND

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
60J	P	-
61J	L	-



# MANUAL AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[MANUAL AIR CONDITIONING]

Connector No.	F27
Connector Name	A/C COMPRESSOR (MAGNETIC CLUTCH)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	P	-
2	B	-

Connector No.	F15
Connector Name	A/C COMPRESSOR (ELECTRICAL CONTROL VALVE)
Connector Color	GRAY



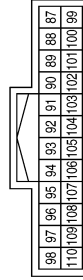
Terminal No.	Color of Wire	Signal Name
3	SB	-
4	Y	-

Connector No.	F10
Connector Name	REFRIGERANT PRESSURE SENSOR
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	GR	-
2	P	-
3	BG	-

Connector No.	F42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
98	Y	O AC VALVE

Connector No.	F35
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
65	P	O AC CLUTCH
71	SB	O IGN REVERSE SW AC VALVE

Connector No.	F33
Connector Name	WIRE TO WIRE
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
4	BG	-
11	P	-
12	GR	-

AA11A0548GB

A  
B  
C  
D  
E  
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HAC  
J  
K  
L  
M  
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O  
P

**[MANUAL AIR CONDITIONING]**

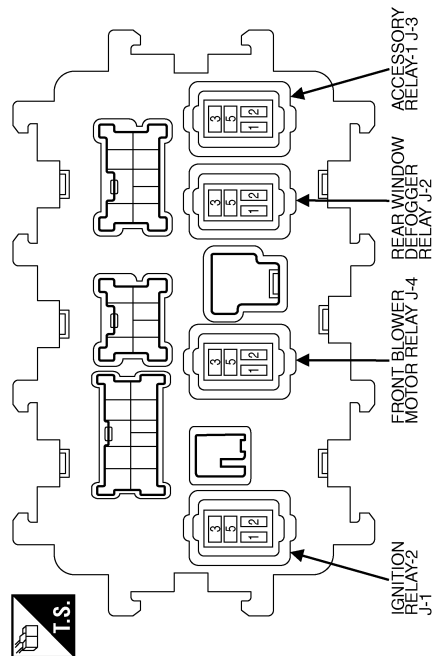
Revision: August 2014

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

Connector No.	J4
Connector Name	FUSE BLOCK (J/B) (FRONT BLOWER MOTOR RELAY)
Connector Color	—



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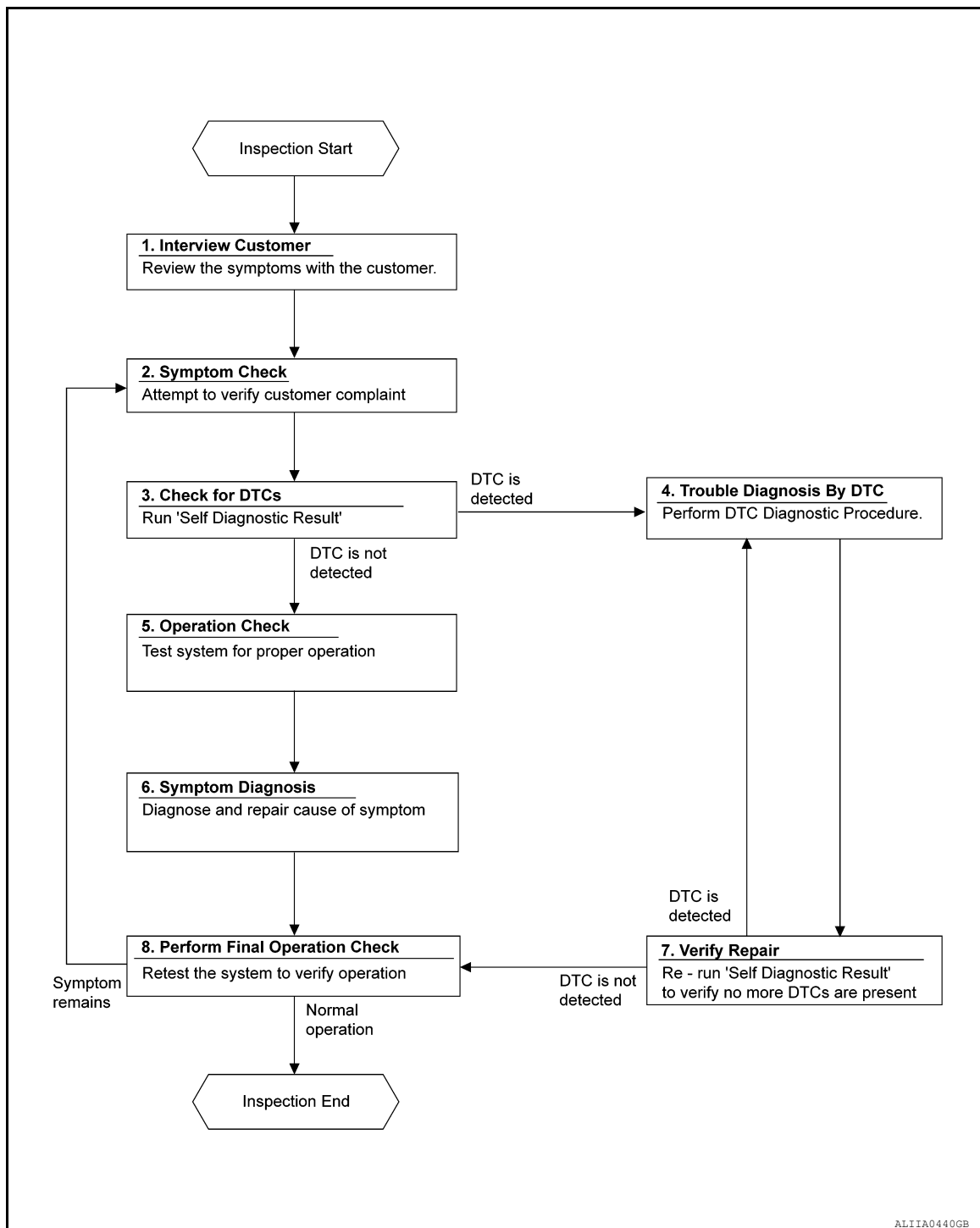
## BASIC INSPECTION

## DIAGNOSIS AND REPAIR WORKFLOW

## Work Flow

INFOID:0000000011276682

## OVERALL SEQUENCE



## DETAILED FLOW

## 1. INTERVIEW CUSTOMER

Interview the customer to obtain as much information as possible about the conditions and environment under which the malfunction occurred.

# DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[MANUAL AIR CONDITIONING]

>> GO TO 2.

## 2. SYMPTOM CHECK

---

Verify symptoms.

>> GO TO 3.

## 3. CHECK FOR DTCS

---

 With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" of "HVAC".
3. Check DTC.

Is any DTC detected?

- YES >> GO TO 4.  
NO >> GO TO 5.

## 4. TROUBLE DIAGNOSIS BY DTC

---

Perform the diagnostic procedure for the detected DTC. Refer to [HAC-135, "DTC Inspection Priority Chart"](#).

>> GO TO 7.

## 5. OPERATION CHECK

---

Perform the operation check. Refer to [HAC-149, "Work Procedure"](#).

>> GO TO 6.

## 6. SYMPTOM DIAGNOSIS

---

Check the symptom diagnosis table. Refer to [HAC-175, "Symptom Table"](#).

>> GO TO 8.

## 7. VERIFY REPAIR.

---

 With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" of "HVAC".
3. Check DTC.

Is any DTC detected?

- YES >> GO TO 4.  
NO >> GO TO 8.

## 8. PERFORM FINAL OPERATION CHECK

---

Perform the operation check. Refer to [HAC-149, "Work Procedure"](#).

Does it operate normally?

- YES >> Inspection End.  
NO >> GO TO 2.

## OPERATION INSPECTION

### Work Procedure

INFOID:0000000011276683

### DESCRIPTION

The purpose of the operational check is to check that the individual system operates normally.

**Check condition** : Engine running at normal operating temperature.

**Check condition** : Blower control dial in OFF position.

**Check condition** : REC off (LED extinguished).

**Check condition** : VENT selected (LED illuminated).

**Check condition** : DEF off (LED extinguished).

### OPERATION INSPECTION

#### 1.CHECK BLOWER

1. Rotate the blower control dial clockwise one detent. Blower should operate on low speed.
2. Rotate the blower control dial one detent at a time, and continue checking blower speed until all speeds are checked.
3. Leave blower on maximum speed.

Is the test result normal?

YES >> GO TO 2.

NO >> Refer to [HAC-168, "Diagnosis Procedure"](#).

#### 2.CHECK A/C SWITCH LED

1. Press A/C switch.
2. A/C switch indicator should turn ON.

Is the test result normal?

YES >> GO TO 3.

NO >> Refer to [HAC-167, "FRONT A/C CONTROL : Diagnosis Procedure"](#).

#### 3.CHECK A/C SWITCH






Confirm that the compressor clutch engages (sound or visual inspection).

Is the test result normal?

YES >> GO TO 4.

NO >> Refer to [HAC-172, "Diagnosis Procedure"](#).

#### 4.CHECK FRONT AIR CONTROL MODE LEDS






1. Press D/F (  ), FOOT (  ), B/L (  ), and VENT (  ), MAX A/C, and DEF (  ).
2. Each button indicator should illuminate.

Is the test result normal?

YES >> GO TO 5.

NO >> Refer to [HAC-167, "FRONT A/C CONTROL : Diagnosis Procedure"](#).

#### 5.CHECK DISCHARGE AIR





1. Press D/F (  ), FOOT (  ), B/L (  ), and VENT (  ) and DEF (  ).
2. Confirm that discharge air comes out according to the air distribution table. Refer to [HAC-120, "Door Control"](#).

Is the test result normal?

YES >> GO TO 6.

NO >> Refer to [HAC-175, "Symptom Table"](#).


#### 6.CHECK REC LED

1. Press DEF (  ) and make sure LED is off.
2. Make sure VENT (  ) or B/L (  ) is selected.
3. Press REC (  ) switch one time. REC indicator should illuminate.

## OPERATION INSPECTION

< BASIC INSPECTION >

[MANUAL AIR CONDITIONING]

- 
4. Press REC (  ) switch one more time. REC indicator should go off.



Is the test result normal?

YES >> GO TO 7.

NO >> Refer to [HAC-167. "FRONT A/C CONTROL : Diagnosis Procedure"](#).

### 7. CHECK INTAKE DOOR OPERATION

---

1. Press REC (  ) switch one time. REC indicator should illuminate.  
2. Listen to the sound of the air coming out of the vent.  
3. Press REC (  ) switch one more time. REC indicator should go off.  
4. There should be an audible change to the sound of the air flowing out of the vent.

Is the test result normal?

YES >> GO TO 8.

NO >> Refer to [HAC-158. "Diagnosis Procedure"](#).

### 8. CHECK TEMPERATURE DECREASE

---

1. Press A/C switch.  
2. Rotate temperature control dial counterclockwise until maximum cold.  
3. Check for cold air at selected discharge air outlets.

Is the test result normal?

YES >> GO TO 9.

NO >> Refer to [HAC-176. "Component Function Check"](#).

### 9. CHECK TEMPERATURE INCREASE

---

1. Rotate temperature control dial clockwise until maximum hot.  
2. Check for hot air at appropriate discharge air outlets.

Is the test result normal?

YES >> Inspection End.

NO >> Refer to [HAC-178. "Component Function Check"](#).

SYSTEM SETTING

Target Evaporator Temp Upper Limit

INFOID:0000000011276684

DESCRIPTION

Set the target evaporator temperature upper limit.

HOW TO SET

 With CONSULT

Perform the "TARGET EVAPORATOR TEMP UPPER LIMIT SETTING" in "Work support" of "HVAC".

Work support items	Display
TARGET EVAPORATOR TEMP UPPER LIMIT SETTING	Initial Setting
	Low
	Middle
	High

A  
B  
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H  
J  
K  
L  
M  
N  
O  
P

HAC

# DOOR MOTOR STARTING POSITION RESET

< BASIC INSPECTION >

[MANUAL AIR CONDITIONING]

## DOOR MOTOR STARTING POSITION RESET

### Description

INFOID:0000000011276685

- Reset signal is transmitted from A/C auto amp. to air mix door motor, intake door motor and mode door motor. Starting position reset can be performed.

#### NOTE:

During reset, DEF switch indicator blinks.

- When air mix door motor, intake door motor or mode door motor is removed and installed, always perform door motor starting position reset.

### Work Procedure

INFOID:0000000011276686

#### 1. PERFORM DOOR MOTOR STARTING POSITION RESET

##### ⑧ With CONSULT

1. Turn ignition switch ON.
2. Select "Door Motor Starting Position Reset" in "Active Test" of "HVAC".
3. Touch "Start" and wait a few seconds.
4. Make sure the "COMPLETED" is displayed on CONSULT screen.

>> Inspection End.



## DTC/CIRCUIT DIAGNOSIS

### U1000 CAN COMM CIRCUIT

#### Description

INFOID:0000000011276687

CAN (Controller Area Network) is a serial communication system for real time application. It is an on-vehicle multiplex communication system with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto vehicles, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with two communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only. Refer to [LAN-32, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"](#).

#### DTC Logic

INFOID:0000000011276688

#### DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
U1000	CAN COMM CIRCUIT	When A/C auto amp. is not transmitting or receiving CAN communication signal for 2 or more seconds.	CAN communication system

#### DTC CONFIRMATION PROCEDURE

##### 1.PERFORM SELF-DIAGNOSIS

###### With CONSULT

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform "Self Diagnostic Result" of "HVAC".
3. Check if any DTC No. is displayed in the self-diagnosis results.

###### Is DTC detected?

- YES >> Refer to [HAC-153, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

#### Diagnosis Procedure

INFOID:0000000011276689

##### 1.CHECK CAN COMMUNICATION SYSTEM

Check CAN communication system. Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

>> Inspection End.

## U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

### U1010 CONTROL UNIT (CAN)

#### Description

INFOID:0000000011276690

Initial diagnosis of A/C auto amp.

#### DTC Logic

INFOID:0000000011276691

#### DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
U1010	CONTROL UNIT (CAN)	When detecting error during the initial diagnosis of CAN controller of front air control.	Front air control

#### DTC CONFIRMATION PROCEDURE

##### 1.PERFORM SELF-DIAGNOSIS

Ⓔ With CONSULT

1. Turn ignition switch ON.
2. Perform "Self Diagnostic Result" of "HVAC".
3. Check if any DTC No. is displayed in the self-diagnosis results.

Is DTC detected?

- YES >> Refer to [HAC-154. "Diagnosis Procedure"](#).  
NO >> Inspection End.

#### Diagnosis Procedure

INFOID:0000000011276692

##### 1.REPLACE FRONT AIR CONTROL

Replace front air control. Refer to [HAC-182. "Removal and Installation"](#).

>> Inspection End.

# B24A4 INTAKE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

## B24A4 INTAKE SENSOR

### DTC Logic

INFOID:0000000011276693

### DTC DETECTION LOGIC

#### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [HAC-153, "DTC Logic"](#).
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [HAC-154, "DTC Logic"](#).

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24A4	INTAKE SENSOR	The intake sensor recognition temperature is too high.	<ul style="list-style-type: none"><li>• Intake sensor</li><li>• A/C auto amp.</li><li>• Harness or connectors (The sensor circuit is open or shorted.)</li></ul>

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

##### With CONSULT

1. Turn ignition switch ON.
2. Perform "Self Diagnostic Result" of "HVAC".
3. Check if any DTC No. is displayed in the self-diagnosis results.

##### Is DTC detected?

- YES >> Refer to [HAC-155, "Diagnosis Procedure"](#).  
NO >> Inspection End.

### Diagnosis Procedure

INFOID:0000000011276694

Regarding Wiring Diagram information, refer to [HAC-137, "Wiring Diagram"](#).

#### 1.CHECK INTAKE SENSOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect intake sensor connector.
3. Turn ignition switch ON.
4. Check voltage between intake sensor harness connector and ground.

+		-	Voltage (Approx.)
Intake sensor			
Connector	Terminal		
M135	1	Ground	5 V

##### Is the inspection result normal?

- YES >> GO TO 2.  
NO >> GO TO 4.

#### 2.CHECK INTAKE SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between intake sensor harness connector and ground.

## B24A4 INTAKE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

Intake sensor		—	Continuity
Connector	Terminal		
M135	2	Ground	Yes

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

### 3.CHECK INTAKE SENSOR

Check intake sensor. Refer to [HAC-156, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace front air control. Refer to [HAC-182, "Removal and Installation"](#).

NO >> Replace intake sensor. Refer to [HAC-183, "Removal and Installation"](#).

### 4.CHECK INTAKE SENSOR POWER SUPPLY CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect front air control connector.
3. Check continuity between intake sensor harness connector and front air control harness connector.

Intake sensor		Front air control		Continuity
Connector	Terminal	Connector	Terminal	
M135	1	M50	21	Yes

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

### 5.CHECK INTAKE SENSOR POWER SUPPLY CIRCUIT FOR SHORT TO GROUND

Check continuity between intake sensor harness connector and ground.

Intake sensor		—	Continuity
Connector	Terminal		
M135	1	Ground	No

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair harness or connector.

### 6.CHECK INTAKE SENSOR POWER SUPPLY CIRCUIT FOR SHORT TO VOLTAGE

1. Turn ignition switch ON.
2. Check voltage between intake sensor harness connector and ground.

+		—	Voltage (Approx.)
Intake sensor			
Connector	Terminal		
M135	1	Ground	0 V

Is the inspection result normal?

YES >> Replace front air control. Refer to [HAC-182, "Removal and Installation"](#).

NO >> Repair harness or connector.

## Component Inspection

INFOID:0000000011276695

### 1.CHECK INTAKE SENSOR

1. Turn ignition switch OFF.
2. Disconnect intake sensor connector.

## B24A4 INTAKE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

3. Check resistance between intake sensor terminals.

Terminal		Condition	Resistance: kΩ (Approx.)
		Temperature: °C (°F)	
1	2	-15 (5)	17.73
		-10 (14)	13.46
		-5 (23)	10.33
		0 (32)	8.00
		5 (41)	6.25
		10 (50)	4.93
		15 (59)	3.92
		20 (68)	3.14
		25 (77)	2.54
		30 (86)	2.06
		35 (95)	1.69
		40 (104)	1.39
		45 (113)	1.15

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace intake sensor. Refer to [HAC-183. "Removal and Installation"](#).

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HAC

## B24B7 INTAKE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

### B24B7 INTAKE DOOR MOTOR

#### DTC Logic

INFOID:0000000011276696

#### DTC DETECTION LOGIC

##### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [HAC-153, "DTC Logic"](#).
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. [HAC-154, "DTC Logic"](#).

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24B7	INTAKE DOOR MOTOR	Short or open circuit of intake door motor drive signal.	<ul style="list-style-type: none"><li>• Intake door motor</li><li>• Intake door motor system installation condition</li><li>• Front air control</li><li>• Harness or connectors (The motor circuit is open or shorted.)</li></ul>

#### DTC CONFIRMATION PROCEDURE

##### 1.PERFORM DTC CONFIRMATION PROCEDURE

##### Ⓔ With CONSULT

1. Start engine.
2. Select "Self Diagnostic Result" of "HVAC".
3. Check DTC.

##### Is DTC detected?

- YES >> Refer to [HAC-158, "Diagnosis Procedure"](#).  
NO >> Inspection End.

#### Diagnosis Procedure

INFOID:0000000011276697

Regarding Wiring Diagram information, refer to [HAC-137, "Wiring Diagram"](#).

##### NOTE:

This DTC can be set if the BCM is placed in transit mode. Confirm if the DTC is CURRENT or PAST. If PAST, perform the following steps before carrying out Diagnosis Procedure.

1. Clear DTC using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
2. Perform OPERATION INSPECTION. Refer to [HAC-48, "Work Procedure"](#).
3. Perform "Self Diagnostic Result" of "HVAC" using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
4. If DTC resets, proceed with Diagnosis Procedure.

##### 1.CHECK INTAKE DOOR MOTOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect intake door motor connector.
3. Turn ignition switch ON.
4. Check voltage between intake door motor harness connector and ground.

+		-	Voltage (Approx.)
Intake door motor			
Connector	Terminal		
M128	2	Ground	Battery voltage

## B24B7 INTAKE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

### 2.CHECK INTAKE DOOR MOTOR POWER SUPPLY CIRCUIT FOR OPEN

1. Disconnect front air control connector.
2. Check continuity between intake door motor harness connector and front air control harness connector.

Intake door motor		Front air control		Continuity
Connector	Terminal	Connector	Terminal	
M128	2	M50	8	Yes

Is the inspection result normal?

YES >> Replace front air control. Refer to [HAC-182. "Removal and Installation"](#).

NO >> Repair harness or connector.

### 3.CHECK INTAKE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect front air control connector.
3. Check continuity between intake door motor harness connector and front air control harness connector.

Intake door motor		Front air control		Continuity
Connector	Terminal	Connector	Terminal	
M128	1	M50	11	Yes
	3		12	
	4		27	
	6		28	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

### 4.CHECK INTAKE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR SHORT

Check continuity between intake door motor harness connector and front air control harness connector.

Intake door motor		—	Continuity
Connector	Terminal		
M128	1	Ground	No
	3		
	4		
	6		

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

### 5.CHECK INTAKE DOOR MOTOR

Check intake door motor. Refer to [HAC-186. "INTAKE DOOR MOTOR : Removal and Installation"](#).

Is the inspection result normal?

YES >> Replace front air control. Refer to [HAC-182. "Removal and Installation"](#).

NO >> Replace intake door motor. Refer to [HAC-186. "INTAKE DOOR MOTOR : Removal and Installation"](#).

## Component Inspection (Motor)

INFOID:0000000011276698

### 1.CHECK INTAKE DOOR MOTOR

## B24B7 INTAKE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

1. Remove intake door motor. Refer to [HAC-186. "INTAKE DOOR MOTOR : Removal and Installation"](#).
2. Check resistance between intake door motor terminals. Refer to applicable table for the normal value.

Terminal		Resistance ( $\Omega$ ) (Approx.)
2	1	90
	3	
	4	
	6	

Is the inspection result normal?

- YES >> Inspection End.
- NO >> Replace intake door motor. Refer to [HAC-186. "INTAKE DOOR MOTOR : Removal and Installation"](#).



# B24B9 MODE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

## B24B9 MODE DOOR MOTOR

### DTC Logic

INFOID:0000000011276699

### DTC DETECTION LOGIC

#### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [HAC-153, "DTC Logic"](#).
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. [HAC-154, "DTC Logic"](#).
- If mode door motors DTC (B27A6 – B27A9) are detected, there is probably a disconnected connector or an open circuit in mode door motor drive power supply harness.

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24B9	MODE DOOR MOTOR	Short or open circuit of mode door motor drive signal.	<ul style="list-style-type: none"><li>• Mode door motor</li><li>• Front air control</li><li>• Harness or connectors (The motor circuit is open or shorted.)</li></ul>

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

##### ⒺWith CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" of "HVAC".
3. Check DTC.

##### Is DTC detected?

- YES >> Refer to [HAC-161, "Diagnosis Procedure"](#).  
NO >> Inspection End.

### Diagnosis Procedure

INFOID:0000000011276700

Regarding Wiring Diagram information, refer to [HAC-137, "Wiring Diagram"](#).

#### NOTE:

This DTC can be set if the BCM is placed in transit mode. Confirm if the DTC is CURRENT or PAST. If PAST, perform the following steps before carrying out Diagnosis Procedure.

1. Clear DTC using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
2. Perform OPERATION INSPECTION. Refer to [HAC-48, "Work Procedure"](#).
3. Perform "Self Diagnostic Result" of "HVAC" using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
4. If DTC resets, proceed with Diagnosis Procedure.

#### 1.CHECK MODE DOOR MOTOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect mode door motor connector.
3. Turn ignition switch ON.
4. Check voltage between mode door motor harness connector and ground.

+		-	Voltage (Approx.)
Mode door motor			
Connector	Terminal		
M131	2	Ground	Battery voltage

## B24B9 MODE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> GO TO 2.

### 2.CHECK MODE DOOR MOTOR POWER SUPPLY CIRCUIT FOR OPEN

1. Disconnect front air control connector.
2. Check continuity between mode door motor harness connector and front air control harness connector.

Mode door motor		Front air control		Continuity
Connector	Terminal	Connector	Terminal	
M131	2	M50	8	Yes

Is the inspection result normal?

- YES >> Replace front air control. Refer to [HAC-182. "Removal and Installation"](#).  
NO >> Repair harness or connector.

### 3.CHECK MODE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect front air control connector.
3. Check continuity between mode door motor harness connector and front air control harness connector.

Mode door motor		Front air control		Continuity
Connector	Terminal	Connector	Terminal	
M131	4	M50	29	Yes
	3		14	
	6		30	
	1		13	

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Repair harness or connector.

### 4.CHECK MODE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR SHORT

Check continuity between mode door motor harness connector and ground.

Mode door motor		—	Continuity
Connector	Terminal		
M131	4	Ground	No
	3		
	6		
	1		

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Repair harness or connector.

### 5.CHECK MODE DOOR MOTOR

Check mode door motor. Refer to [HAC-162. "Component Inspection"](#).

Is the inspection result normal?

- YES >> Replace front air control. Refer to [HAC-182. "Removal and Installation"](#).  
NO >> Replace mode door motor. Refer to [HAC-186. "MODE DOOR MOTOR : Removal and Installation"](#).

## Component Inspection

INFOID:0000000011276701

### 1.CHECK MODE DOOR MOTOR

## B24B9 MODE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

1. Remove mode door motor. Refer to [HAC-186, "MODE DOOR MOTOR : Removal and Installation"](#).
2. Check resistance between mode door motor terminals. Refer to applicable table for the normal value.

Terminal		Resistance ( $\Omega$ ) (Approx.)
2	1	90
	6	
	3	
	4	

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace mode door motor. Refer to [HAC-186, "MODE DOOR MOTOR : Removal and Installation"](#).

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HAC

## B24BB LEFT AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

### B24BB LEFT AIR MIX DOOR MOTOR

#### DTC Logic

INFOID:0000000011276702

#### DTC DETECTION LOGIC

##### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [HAC-153, "DTC Logic"](#).
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. [HAC-154, "DTC Logic"](#).

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24BB	AIR MIX DOOR MOT	Short or open circuit of air mix door motor drive signal.	<ul style="list-style-type: none"><li>• Air mix door motor</li><li>• Front air control</li><li>• Harness or connectors (The motor circuit is open or shorted.)</li></ul>

#### DTC CONFIRMATION PROCEDURE

##### 1.PERFORM DTC CONFIRMATION PROCEDURE

##### With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" mode of "HVAC".
3. Check DTC.

##### Is DTC detected?

- YES >> Refer to [HAC-164, "Diagnosis Procedure"](#).  
NO >> Inspection End.

#### Diagnosis Procedure

INFOID:0000000011276703

Regarding Wiring Diagram information, refer to [HAC-137, "Wiring Diagram"](#).

##### NOTE:

This DTC can be set if the BCM is placed in transit mode. Confirm if the DTC is CURRENT or PAST. If PAST, perform the following steps before carrying out Diagnosis Procedure.

1. Clear DTC using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
2. Perform OPERATION INSPECTION. Refer to [HAC-48, "Work Procedure"](#).
3. Perform "Self Diagnostic Result" of "HVAC" using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
4. If DTC resets, proceed with Diagnosis Procedure.

##### 1.CHECK AIR MIX DOOR MOTOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect air mix door motor connector.
3. Turn ignition switch ON.
4. Check voltage between air mix door motor harness connector and ground.

+		-	Voltage (Approx.)
Air mix door motor			
Connector	Terminal		
M136	2	Ground	Battery voltage

##### Is the inspection result normal?

- YES >> GO TO 3.

## B24BB LEFT AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

NO >> GO TO 2.

### 2.CHECK AIR MIX DOOR MOTOR POWER SUPPLY CIRCUIT FOR OPEN

1. Disconnect front air control connector.
2. Check continuity between air mix door motor harness connector and front air control harness connector.

Air mix door motor		Front air control		Continuity
Connector	Terminal	Connector	Terminal	
M136	2	M50	24	Yes

Is the inspection result normal?

YES >> Replace front air control. Refer to [HAC-182, "Removal and Installation"](#).

NO >> Repair harness or connector.

### 3.CHECK AIR MIX DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect front air control connector.
3. Check continuity between air mix door motor harness connector and front air control harness connector.

Air mix door motor		Front air control		Continuity
Connector	Terminal	Connector	Terminal	
M136	3	M50	10	Yes
	6		26	
	1		9	
	4		25	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

### 4.CHECK AIR MIX DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR SHORT

Check continuity between air mix door motor harness connector and front air control harness connector.

Air mix door motor		—	Continuity
Connector	Terminal		
M131	3	Ground	No
	6		
	1		
	4		

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

### 5.CHECK AIR MIX DOOR MOTOR

Check air mix door motor. Refer to [HAC-165, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace front air control. Refer to [HAC-182, "Removal and Installation"](#).

NO >> Replace air mix door motor. Refer to [HAC-186, "AIR MIX DOOR MOTOR : Removal and Installation"](#).

## Component Inspection

INFOID:0000000011276704

### 1.CHECK AIR MIX DOOR MOTOR

1. Remove air mix door motor. Refer to [HAC-186, "AIR MIX DOOR MOTOR : Removal and Installation"](#).
2. Check resistance between air mix door motor terminals. Refer to applicable table for the normal value.

## B24BB LEFT AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

Terminal		Resistance ( $\Omega$ ) (Approx.)
2	3	90
	6	
	1	
	4	

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace air mix door motor. Refer to [HAC-186, "AIR MIX DOOR MOTOR : Removal and Installation"](#).

# POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

## POWER SUPPLY AND GROUND CIRCUIT

### FRONT A/C CONTROL

#### FRONT A/C CONTROL : Diagnosis Procedure

INFOID:0000000011276705

Regarding Wiring Diagram information, refer to [HAC-137. "Wiring Diagram"](#).

#### 1.CHECK FUSE

Check 10A fuse [No. 20, located in the fuse block (J/B)].

**NOTE:**

Refer to [PG-64. "Terminal Arrangement"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit.

#### 2.CHECK FRONT AIR CONTROL POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect front air control connector.
3. Check voltage between front air control harness connector and ground.

+		-	Voltage		
Front air control			Ignition switch position		
Connector	Terminal		OFF	ACC	ON
M50	3	Ground	Approx. 0 V	Approx. 0 V	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

#### 3.CHECK FRONT AIR CONTROL GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between front air control harness connector and ground.

Front air control		—	Continuity
Connector	Terminal		
M50	19	Ground	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair harness or connector.

## FRONT BLOWER MOTOR

## Diagnosis Procedure

INFOID:000000011276706

Regarding Wiring Diagram information, refer to [HAC-137, "Wiring Diagram"](#).

**1. CHECK FUSE**

1. Turn ignition switch OFF.
2. Check 15A fuses [Nos. 17 and 27, located in fuse block (J/B)]

**NOTE:**

Refer to [PG-64, "Terminal Arrangement"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit.

**2. CHECK FRONT BLOWER MOTOR POWER SUPPLY**

1. Disconnect front blower motor connector.
2. Turn ignition switch ON.
3. Check voltage between front blower motor harness connector and ground.

+		-	Voltage (Approx.)
Front blower motor			
Connector	Terminal		
M144	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 3.

**3. CHECK FRONT BLOWER RELAY**

1. Turn ignition switch OFF.
2. Check front blower relay. Refer to [HAC-171, "Component Inspection \(Front Blower Relay\)"](#).

Is the inspection result normal?

YES >> Repair harness or connector between front blower motor and fuse.

NO >> Replace front blower relay.

**4. CHECK BLOWER MOTOR CONTROL CIRCUIT**

1. Turn ignition switch OFF.
2. Connect front blower motor connector.
3. Disconnect variable blower control connector.
4. Turn ignition switch ON.
5. Check voltage between variable blower control harness connector and ground.

+		-	Voltage (Approx.)
Variable blower control			
Connector	Terminal		
M146	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 6.

NO >> GO TO 5.

**5. CHECK FRONT BLOWER MOTOR CONTROL CIRCUIT FOR OPEN**

1. Turn ignition switch OFF.



# FRONT BLOWER MOTOR

## < DTC/CIRCUIT DIAGNOSIS >

## [MANUAL AIR CONDITIONING]

2. Disconnect front blower motor connector.
3. Check continuity between variable blower control harness connector and front blower motor harness connector.

Variable blower control		Front blower motor		Continuity
Connector	Terminal	Connector	Terminal	
M146	1	M144	2	Yes

### Is the inspection result normal?

- YES >> Replace front blower motor. Refer to [VTL-16, "Removal and Installation"](#).  
NO >> Repair harness or connector.

## 6.CHECK VARIABLE BLOWER CONTROL GROUND CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Check continuity between variable blower control harness connector and ground.

Variable blower control		—	Continuity
Connector	Terminal		
M146	3	Ground	Yes

### Is the inspection result normal?

- YES >> GO TO 7.  
NO >> Repair harness or connector.

## 7.CHECK VARIABLE BLOWER CONTROL SIGNAL CIRCUIT

1. Turn blower control dial fully counterclockwise to the OFF position
2. While turning the blower control dial clockwise, through each detent, check voltage between variable blower control and ground.

# FRONT BLOWER MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

Power transistor			Condition					
Connector	Terminal		Blower control dial detents	VENT	B/L	D/F1	D/F2	DEF
				Voltage				
M146	2	Ground	OFF	0.00 volts	0.00 volts	0.00 volts	0.00 volts	0.00 volts
			1	4.00 volts	4.00 volts	4.00 volts	4.00 volts	4.00 volts
			2	4.75 volts	4.75 volts	4.75 volts	4.75 volts	4.75 volts
			3	5.00 volts	5.00 volts	5.25 volts	5.25 volts	5.25 volts
			4	5.50 volts	5.50 volts	5.50 volts	5.50 volts	5.50 volts
			5	5.75 volts	5.75 volts	6.00 volts	6.00 volts	6.00 volts
			6	6.25 volts	6.25 volts	6.25 volts	6.25 volts	6.25 volts
			7	6.50 volts	6.50 volts	6.75 volts	6.75 volts	6.75 volts
			8	6.75 volts	6.75 volts	7.00 volts	7.00 volts	7.00 volts
			9	7.25 volts	7.25 volts	7.50 volts	7.50 volts	7.50 volts
			10	7.50 volts	7.50 volts	7.75 volts	7.75 volts	7.75 volts
			11	8.00 volts	8.00 volts	8.25 volts	8.25 volts	8.25 volts
			12	8.25 volts	8.25 volts	8.50 volts	8.50 volts	8.50 volts
			13	8.50 volts	8.50 volts	9.00 volts	9.00 volts	9.00 volts
			14	9.00 volts	9.00 volts	9.25 volts	9.25 volts	9.25 volts
			15	9.25 volts	9.25 volts	9.75 volts	9.75 volts	9.75 volts
			16	9.75 volts	9.75 volts	10.00 volts	10.00 volts	10.00 volts
			17	10.00 volts	10.00 volts	10.50 volts	10.50 volts	10.50 volts
			18	10.50 volts	10.50 volts	10.75 volts	10.75 volts	10.75 volts
			19	10.75 volts	10.75 volts	11.25 volts	11.25 volts	11.25 volts
			20	11.00 volts	11.00 volts	11.50 volts	11.50 volts	11.50 volts
			21	11.50 volts	11.50 volts	12.00 volts	12.00 volts	12.00 volts
			22	11.75 volts	11.75 volts	12.25 volts	12.25 volts	12.25 volts
			23	12.25 volts	12.25 volts	12.75 volts	12.75 volts	12.75 volts
			24	12.50 volts	12.50 volts	13.00 volts	13.00 volts	13.00 volts
			12 = Max blower voltage					

Is the inspection result normal?

YES >> Replace variable blower control. Refer to [HAC-188. "Removal and Installation"](#).

NO >> GO TO 8.

## 8.CHECK VARIABLE BLOWER CONTROL SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect variable blower control connector and front air control connector.
3. Check continuity between variable blower control harness connector and front air control harness connector.

Variable blower control		Front air control		Continuity
Connector	Terminal	Connector	Terminal	
M146	2	M50	1	Yes

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair harness or connector.

## 9.CHECK VARIABLE BLOWER CONTROL SIGNAL CIRCUIT FOR SHORT

# FRONT BLOWER MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

Check continuity between variable blower control harness connector and ground.

Variable blower control		—	Continuity
Connector	Terminal		
M146	2	Ground	No

Is the inspection result normal?

- YES >> Replace front air control. Refer to [HAC-182, "Removal and Installation"](#).  
NO >> Repair harness or connector.

## Component Inspection (Front Blower Motor)

INFOID:0000000011276707

### 1.CHECK FRONT BLOWER MOTOR

1. Connect battery voltage to terminal 1 of front blower motor.
2. Connect ground to terminal 2 of front blower motor.

Does the blower fan operate?

- YES >> Intermittent incident. Refer to [GI-44, "Intermittent Incident"](#).  
NO >> Replace front blower motor. Refer to [VTL-16, "Removal and Installation"](#).

## Component Inspection (Front Blower Relay)

INFOID:0000000011276708

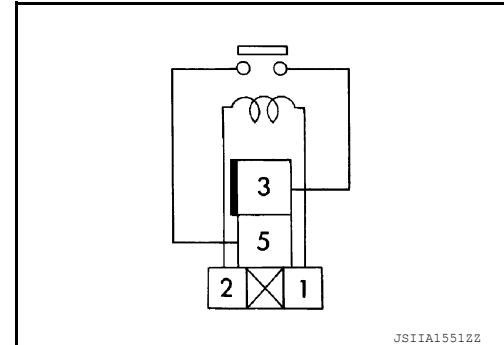
### 1.CHECK FRONT BLOWER RELAY

1. Turn ignition switch OFF.
2. Remove front blower relay.
3. Check continuity between front blower relay terminals 3 and 5 when voltage is supplied between terminals 1 and 2.

Terminals		Voltage	Continuity
3	5	ON	Yes
		OFF	No

Is the inspection result normal?

- YES >> Inspection End.  
NO >> Replace front blower relay.



## MAGNET CLUTCH

### Component Function Check

INFOID:0000000011276709

#### 1.CHECK MAGNET CLUTCH OPERATION

Perform "COMPRESSOR" in "Active Test" of "IPDM E/R". Refer to [HAC-129, "CONSULT Function \(IPDM E/R\)"](#).

Does it operate normally?

YES >> Inspection End.

NO >> Refer to [HAC-172, "Diagnosis Procedure"](#).

#### Diagnosis Procedure

INFOID:0000000011276710

Regarding Wiring Diagram information, refer to [HAC-137, "Wiring Diagram"](#).

#### 1.CHECK FUSE

1. Turn ignition switch OFF.
2. Check 15A fuse (No. 40, located in IPDM E/R).

**NOTE:**

Refer to [PG-68, "IPDM E/R Terminal Arrangement"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit.

#### 2.CHECK MAGNET CLUTCH POWER SUPPLY CIRCUIT

1. Disconnect A/C compressor connector and IPDM E/R connector.
2. Check continuity between A/C compressor harness connector and IPDM E/R harness connector.

A/C compressor		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
F27	1	F35	65	Yes

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

#### 3.CHECK MAGNET CLUTCH GROUND CIRCUIT

1. Disconnect A/C compressor connector.
2. Check continuity between A/C compressor harness connector and ground.

A/C compressor			Continuity
Connector	Terminal		
F27	2	Ground	Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

#### 4.CHECK MAGNET CLUTCH

Directly apply battery voltage to the magnet clutch. Check operation visually and by sound.

Does it operate normally?

YES >> Replace IPDM E/R. Refer to [PCS-40, "Removal and Installation"](#).

NO >> Replace magnet clutch. Refer to [HA-29, "Removal and Installation"](#).

# ECV (ELECTRICAL CONTROL VALVE)

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

## ECV (ELECTRICAL CONTROL VALVE)

### Diagnosis Procedure

INFOID:0000000011276711

Regarding Wiring Diagram information, refer to [HAC-137, "Wiring Diagram"](#).

### 1. CHECK ECV (ELECTRICAL CONTROL VALVE) POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect A/C compressor connector.
3. Turn ignition switch ON.
4. Check voltage between A/C compressor harness connector and ground.

+		-	Voltage (Approx.)
A/C compressor			
Connector	Terminal		
F15	3	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

### 2. CHECK FUSE

1. Turn ignition switch OFF.
2. Check 10A fuse [No. 50, located in IPDM E/R]. Refer to [PG-68, "IPDM E/R Terminal Arrangement"](#).

Is the inspection result normal?

YES >> Repair harness or connector.

NO >> Replace the blown fuse after repairing the affected circuit.

### 3. CHECK ECV CONTROL SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between A/C compressor harness connector and IPDM E/R harness connector.

A/C compressor		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
F15	4	F42	98	Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

### 4. CHECK ECV CONTROL SIGNAL CIRCUIT FOR SHORT

Check continuity between A/C compressor harness connector and ground.

A/C compressor		—	Continuity
Connector	Terminal		
F15	4	Ground	No

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

### 5. CHECK ECV

Check ECV. Refer to [HAC-174, "Component Inspection"](#).

## ECV (ELECTRICAL CONTROL VALVE)

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace A/C compressor. Refer to [HA-29, "Removal and Installation"](#).

### 6.CHECK INTERMITTENT INCIDENT

Refer to [GI-44, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Replace front air control. Refer to [HAC-182, "Removal and Installation"](#).

NO >> Repair or replace malfunctioning parts.

## Component Inspection

INFOID:0000000011276712

### 1.CHECK ECV (ELECTRICAL CONTROL VALVE)

1. Turn ignition switch OFF.
2. Disconnect A/C compressor connector.
3. Check continuity between A/C compressor connector F15 terminals.

Terminals		Condition	Resistance (kΩ) (Approx.)
		Temperature: °C (°F)	
3	4	20 (68)	10.1 – 11.1

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace A/C compressor. Refer to [HA-29, "Removal and Installation"](#).

# HEATER AND AIR CONDITIONING SYSTEM CONTROL SYMPTOMS

< SYMPTOM DIAGNOSIS >

[MANUAL AIR CONDITIONING]

## SYMPTOM DIAGNOSIS

### HEATER AND AIR CONDITIONING SYSTEM CONTROL SYMPTOMS

#### Symptom Table

INFOID:0000000011276713

#### SYMPTOM TABLE

Symptom	Reference Page	
A/C system does not come on.	Go to Trouble Diagnosis Procedure for A/C System.	<a href="#">HAC-167, "FRONT A/C CONTROL : Diagnosis Procedure"</a>
Air outlet does not change.	Go to Trouble Diagnosis Procedure for Mode Door Motor.	<a href="#">HAC-161, "Diagnosis Procedure"</a>
Mode door motor does not operate normally.		
Discharge air temperature does not change.	Go to Trouble Diagnosis Procedure for Air Mix Door Motor.	<a href="#">HAC-164, "Diagnosis Procedure"</a>
Air mix door motor does not operate normally.		
Intake door does not change.	Go to Trouble Diagnosis Procedure for Intake Door Motor.	<a href="#">HAC-158, "Diagnosis Procedure"</a>
Intake door motor does not operate normally.		
Blower motor operation is malfunctioning.	Go to Trouble Diagnosis Procedure for Blower Motor.	<a href="#">HAC-168, "Diagnosis Procedure"</a>
Magnet clutch does not engage.	Go to Trouble Diagnosis Procedure for Magnet Clutch.	<a href="#">HAC-172, "Component Function Check"</a>
Insufficient cooling	Go to Trouble Diagnosis Procedure for Insufficient Cooling.	<a href="#">HAC-176, "Component Function Check"</a>
Insufficient heating	Go to Trouble Diagnosis Procedure for Insufficient Heating.	<a href="#">HAC-178, "Component Function Check"</a>
Noise	Go to Trouble Diagnosis Procedure for Noise.	<a href="#">HA-20, "Symptom Table"</a>

## INSUFFICIENT COOLING

## Component Function Check

SYMPTOM: Insufficient cooling

## INSPECTION FLOW

**1. CONFIRM SYMPTOM BY PERFORMING OPERATION CHECK - TEMPERATURE DECREASE**

1. Press the A/C switch.
2. Turn temperature control dial counterclockwise to maximum cold.
3. Check for cold air at discharge air outlets.

Can a symptom be duplicated?

- YES >> GO TO 3.  
 NO >> GO TO 2.

**2. CHECK FOR ANY SYMPTOMS**Perform a complete operational check and check for any symptoms. Refer to [HAC-149. "Work Procedure"](#).Does another symptom exist?

- YES >> Refer to [HAC-175. "Symptom Table"](#).  
 NO >> System OK.

**3. CHECK FOR SERVICE BULLETINS**

Check for any service bulletins.

&gt;&gt; GO TO 4.

**4. CHECK DRIVE BELTS**Check A/C compressor belt tension. Refer to [EM-15. "Checking"](#).Is the inspection result normal?

- YES >> GO TO 5.  
 NO >> Adjust or replace compressor belt. Refer to [EM-15. "Tension Adjustment"](#).

**5. CHECK AIR MIX DOOR MOTOR OPERATION**

Check and verify air mix door mechanism for smooth operation.

Does air mix door operate correctly?

- YES >> GO TO 6.  
 NO >> Check air mix door motor circuit. Refer to [HAC-164. "Diagnosis Procedure"](#).

**6. CHECK COOLING FAN MOTOR OPERATION**

Check and verify cooling fan motor for smooth operation.

Does cooling fan motor operation correctly?

- YES >> GO TO 7.  
 NO >> Check cooling fan motor. Refer to [EC-461. "Component Function Check"](#).

**7. CHECK RECOVERY/RECYCLING EQUIPMENT BEFORE USAGE**

Check recovery/recycling equipment before connecting to vehicle. Verify there is no pressure in the recovery/recycling equipment by checking the gauges. If pressure exists, recover refrigerant from equipment lines.

&gt;&gt; GO TO 8.

**8. CHECK REFRIGERANT PURITY**

1. Connect recovery/recycling equipment to vehicle.
2. Confirm refrigerant purity in supply tank using recovery/recycling and refrigerant identifier.

Is the inspection result normal?

- YES >> GO TO 9.  
 NO >> Check contaminated refrigerant. Refer to [HA-21. "Description"](#).



## INSUFFICIENT COOLING

< SYMPTOM DIAGNOSIS >

[MANUAL AIR CONDITIONING]

### 9. CHECK REFRIGERANT PRESSURE

Check refrigerant pressure with manifold gauge connected. Refer to [HA-27, "Inspection"](#).

Is the inspection result normal?

- YES >> Perform diagnostic work flow. Refer to [HA-15, "Workflow"](#).  
NO >> GO TO 10.

### 10. CHECK FOR EVAPORATOR FREEZE UP

Start engine and run A/C. Check for evaporator freeze up.

Does evaporator freeze up?

- YES >> Perform diagnostic work flow. Refer [HA-15, "Workflow"](#).  
NO >> GO TO 11.

### 11. CHECK AIR DUCTS

Check ducts for air leaks.

Is the inspection result normal?

- YES >> System OK.  
NO >> Repair air leaks.

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P

HAC

**INSUFFICIENT HEATING****Component Function Check**

SYMPTOM: Insufficient heating

**INSPECTION FLOW****1. CONFIRM SYMPTOM BY PERFORMING OPERATION CHECK - TEMPERATURE INCREASE**

1. Turn temperature control dial clockwise to maximum heat.
2. Check for hot air at discharge air outlets.

Can a symptom be duplicated?

- YES >> GO TO 3.  
NO >> GO TO 2.

**2. CHECK FOR ANY SYMPTOMS**Perform a complete operational check and check for any symptoms. Refer to [HAC-149, "Work Procedure"](#).Does another symptom exist?

- YES >> Refer to [HAC-175, "Symptom Table"](#).  
NO >> System OK.

**3. CHECK FOR SERVICE BULLETINS**

Check for any service bulletins.

&gt;&gt; GO TO 4.

**4. CHECK ENGINE COOLING SYSTEM**

1. Check for proper engine coolant level. Refer to [CO-8, "Inspection"](#).
2. Check hoses for leaks or kinks.
3. Check radiator cap. Refer to [CO-12, "RADIATOR CAP : Inspection"](#).
4. Check for air in cooling system.

&gt;&gt; GO TO 5.

**5. CHECK AIR MIX DOOR MOTOR OPERATION**

Check and verify air mix door mechanism for smooth operation.

Does air mix door operate correctly?

- YES >> GO TO 6.  
NO >> Check the air mix door motor circuit. Refer to [HAC-164, "Diagnosis Procedure"](#).

**6. CHECK AIR DUCTS**

Check for disconnected or leaking air ducts.

Is the inspection result normal?

- YES >> GO TO 7.  
NO >> Repair all disconnected or leaking air ducts.

**7. CHECK HEATER HOSE TEMPERATURES**

1. Start engine and warm it up to normal operating temperature.
2. Touch both the inlet and outlet heater hoses. The inlet hose should be hot and the outlet hose should be warm.

Is the inspection result normal?

- YES >> GO TO 8.  
NO >> Both hoses warm: GO TO 9.

**8. CHECK ENGINE COOLANT SYSTEM**Check thermostat operation. Refer to [CO-22, "Inspection"](#).Is the inspection result normal?

## INSUFFICIENT HEATING

[MANUAL AIR CONDITIONING]

### < SYMPTOM DIAGNOSIS >

- YES >> System OK.  
NO >> Repair or replace as necessary.

### 9. CHECK HEATER HOSES

Check heater hoses for proper installation.

Is the inspection result normal?

- YES >> System OK.  
NO >> 1. Back flush heater core.  
2. Drain the water from the system.  
3. Refill system with new engine coolant. Refer to [CO-9. "Refilling"](#).  
4. To retest GO TO 10.

### 10. CHECK HEATER HOSE TEMPERATURES

1. Start engine and warm up to normal operating temperature.  
2. Touch both the inlet and outlet heater hoses. The inlet hose should be hot and the outlet hose should be warm

Is the inspection result normal?

- YES >> System OK.  
NO >> Replace heater core. Refer to [HA-43. "HEATER CORE : Removal and Installation"](#).

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HAC

# COMPRESSOR DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[MANUAL AIR CONDITIONING]

## COMPRESSOR DOES NOT OPERATE

### Description

INFOID:0000000011276716

Symptom: Compressor does not operate.

### Diagnosis Procedure

INFOID:0000000011276717

#### NOTE:

- Perform self-diagnoses with CONSULT before performing symptom diagnosis. If DTC is detected, perform the corresponding diagnosis.
- Check that refrigerant system is properly charged. If refrigerant amount is below the proper amount, perform inspection of refrigerant leakage.

### 1.CHECK MAGNET CLUTCH OPERATION

Check magnet clutch. Refer to [HAC-172, "Component Function Check"](#).

Does it operate normally?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning parts.

### 2.CHECK REFRIGERANT PRESSURE SENSOR

Check refrigerant pressure sensor. Refer to [EC-485, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

### 3.CHECK FRONT AIR CONTROL OUTPUT SIGNAL

 With CONSULT

Check "COMP REQ SIG" and "" in "Data Monitor" of "".


Monitor item	Condition		Status
COMP REQ SIG	A/C switch	ON	On
		OFF	Off
FAN REQ SIG	Blower motor	ON	On
		OFF	Off

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace front air control. Refer to [HAC-182, "Removal and Installation"](#).

### 4.CHECK ECM INPUT SIGNAL

 With CONSULT

Check "AIR COND SIG" and "HEATER FAN SW" in "Data Monitor" of "ECM".


Monitor item	Condition		Status
AIR COND SIG	A/C switch	ON	On
		OFF	Off
HEATER FAN SW	Blower motor	ON	On
		OFF	Off

Is the inspection result normal?

YES >> GO TO 5.

NO >> Check CAN communication system. Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

### 5.CHECK IPDM E/R INPUT SIGNAL

 With CONSULT

1. Start engine.

COMPRESSOR DOES NOT OPERATE

< SYMPTOM DIAGNOSIS > [MANUAL AIR CONDITIONING]

2. Check “AC COMP REQ” in “Data Monitor” of “IPDM E/R”.

Monitor item	Condition		Status
AC COMP REQ	A/C switch	ON	On
		OFF	Off

Is the inspection result normal?

- YES >> Inspection End.
- NO >> Check CAN communication system. Refer to [LAN-17. "Trouble Diagnosis Flow Chart"](#).

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HAC

## REMOVAL AND INSTALLATION

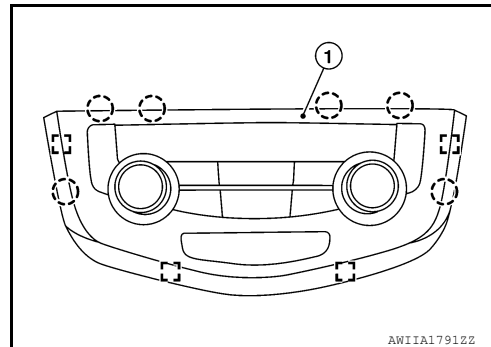
### FRONT AIR CONTROL

#### Removal and Installation

INFOID:0000000011276718

#### REMOVAL

1. Release the front air control clips and pawls using a suitable tool.  
 Metal clip  
 Pawl
2. Disconnect the harness connectors from the front air control (1) and remove.



AWI1A17912Z

#### INSTALLATION

Installation is in the reverse order of removal.

# INTAKE SENSOR

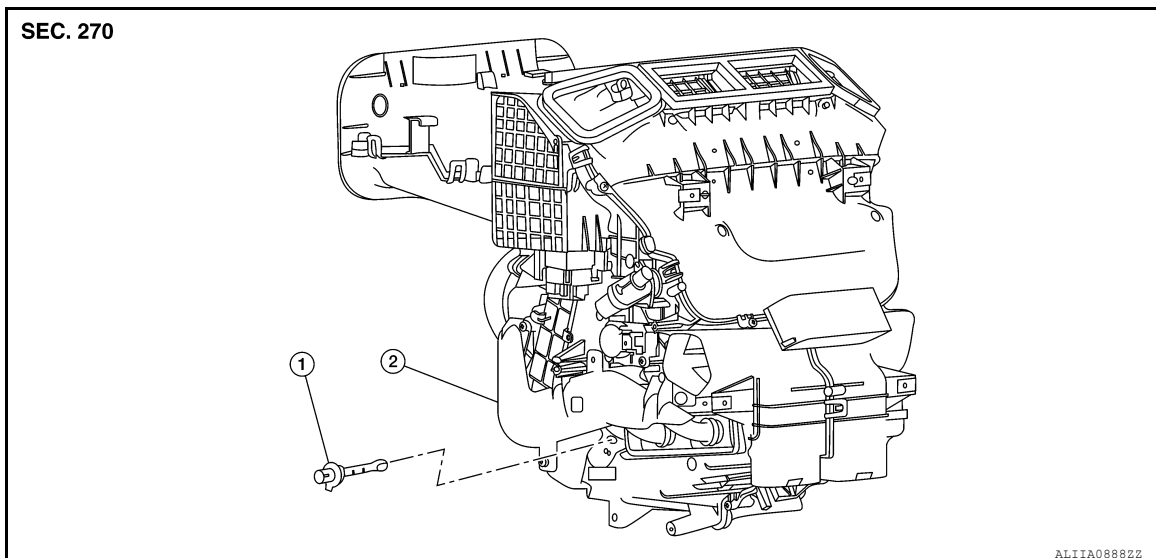
< REMOVAL AND INSTALLATION >

[MANUAL AIR CONDITIONING]

## INTAKE SENSOR

Exploded View

INFOID:0000000011276719



## Removal and Installation

INFOID:0000000011276720

### REMOVAL

1. Remove front foot duct (LH). Refer to [VTL-10, "FRONT FOOT DUCT : Removal and Installation"](#).
2. Disconnect the harness connector and remove intake sensor.

### INSTALLATION

Installation is in the reverse order of removal.

# REFRIGERANT PRESSURE SENSOR

< REMOVAL AND INSTALLATION >

[MANUAL AIR CONDITIONING]

## REFRIGERANT PRESSURE SENSOR

### Removal and Installation

INFOID:000000011276721

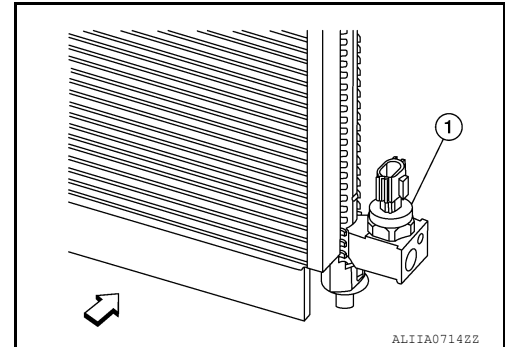
#### REMOVAL

1. Discharge the refrigerant. Refer to [HA-22, "Recycle Refrigerant"](#).
2. Remove front bumper fascia. Refer to [EXT-17, "Removal and Installation"](#).
3. Remove air guide (RH). Refer to [HA-37, "Exploded View"](#).
4. Disconnect the harness connector from the refrigerant pressure sensor.
5. Remove the refrigerant pressure sensor (1) from the condenser.

⇐: Front

#### **CAUTION:**

Cap or wrap the opening of the refrigerant pressure sensor with suitable material such as vinyl tape to avoid the entry of air.



ALI1A07142Z

#### INSTALLATION

Installation is in the reverse order of removal.

#### **CAUTION:**

- Do not reuse O-ring.
- Apply A/C oil to new O-ring for installation.
- After charging refrigerant, check for leaks. Refer to [HA-21, "Leak Test"](#).



# DOOR MOTOR

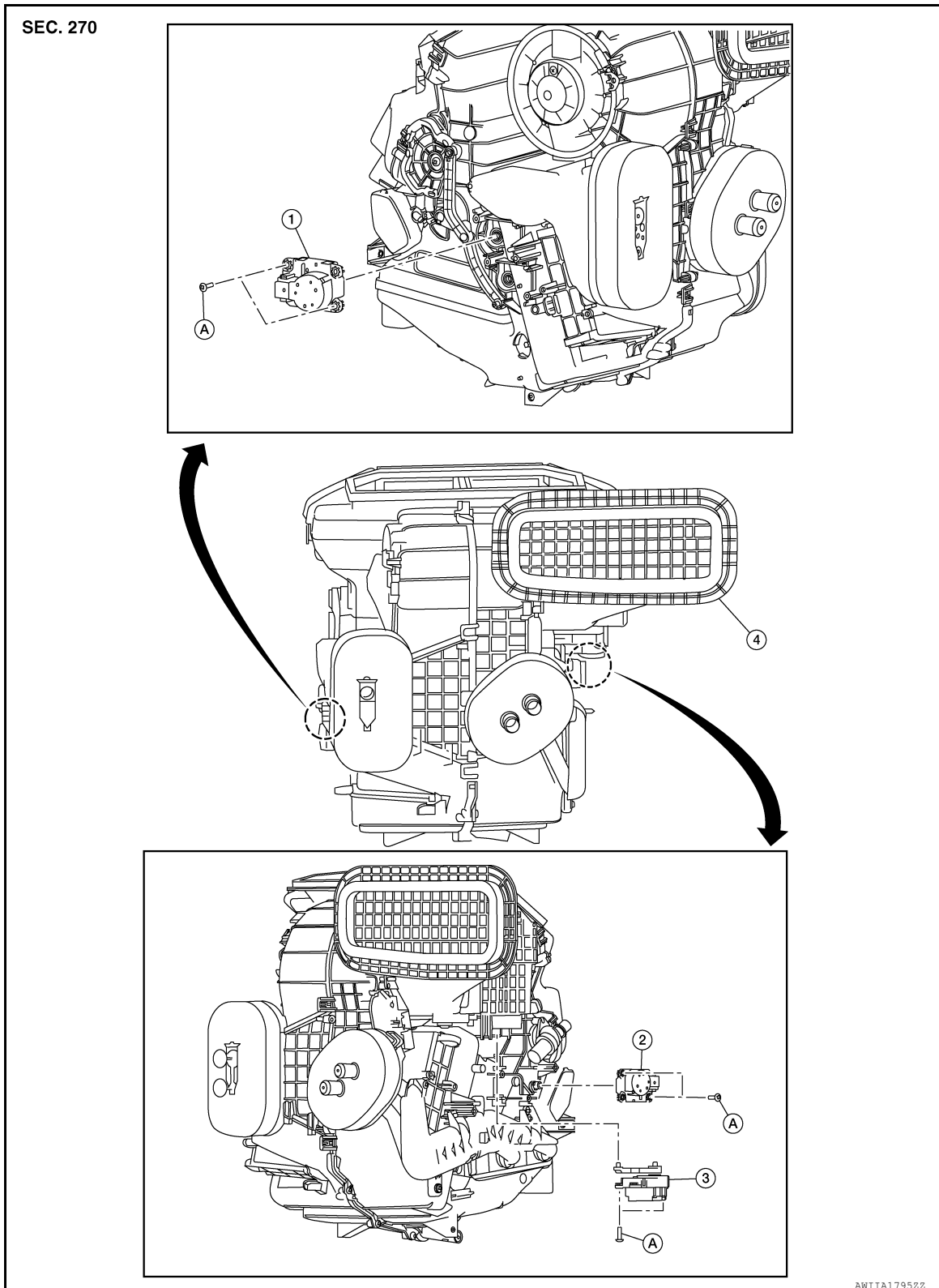
< REMOVAL AND INSTALLATION >

[MANUAL AIR CONDITIONING]

## DOOR MOTOR

### Exploded View

INFOID:0000000011276722



## DOOR MOTOR

< REMOVAL AND INSTALLATION >

[MANUAL AIR CONDITIONING]

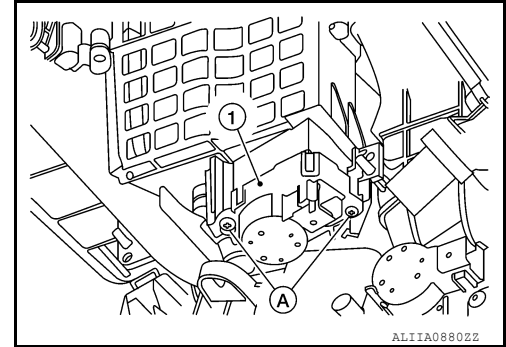
### INTAKE DOOR MOTOR

#### INTAKE DOOR MOTOR : Removal and Installation

INFOID:0000000011276723

##### REMOVAL

1. Remove front foot duct (LH). Refer to [VTL-10, "FRONT FOOT DUCT : Removal and Installation"](#).
2. Disconnect the harness connector from the intake door motor.
3. Remove screws (A) and intake door motor (1).



##### INSTALLATION

Installation is in the reverse order of removal.

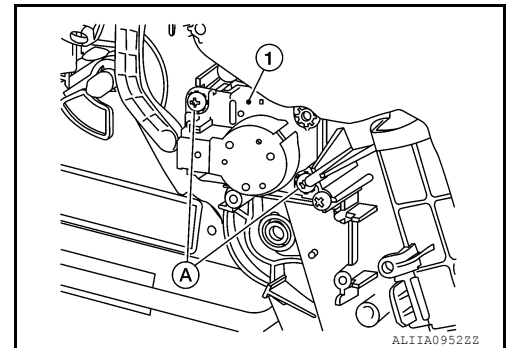
### MODE DOOR MOTOR

#### MODE DOOR MOTOR : Removal and Installation

INFOID:0000000011276724

##### REMOVAL

1. Remove front foot duct (RH). Refer to [VTL-10, "FRONT FOOT DUCT : Removal and Installation"](#).
2. Disconnect the harness connector from the mode door motor.
3. Remove screws (A) and mode door motor (1).



##### INSTALLATION

Installation is in the reverse order of removal.

### AIR MIX DOOR MOTOR

#### AIR MIX DOOR MOTOR : Removal and Installation

INFOID:0000000011276725

##### REMOVAL

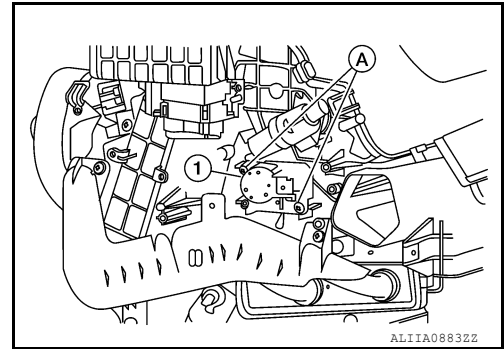
1. Remove front foot duct (LH). Refer to [VTL-10, "FRONT FOOT DUCT : Removal and Installation"](#).
2. Disconnect the harness connector from the air mix door motor.

## DOOR MOTOR

### < REMOVAL AND INSTALLATION >

### [MANUAL AIR CONDITIONING]

3. Remove screws (A) and air mix door motor (1).



### INSTALLATION

Installation is in the reverse order of removal.

A  
B  
C  
D  
E  
F  
G  
H  
HAC  
J  
K  
L  
M  
N  
O  
P

## VARIABLE BLOWER CONTROL

< REMOVAL AND INSTALLATION >

[MANUAL AIR CONDITIONING]

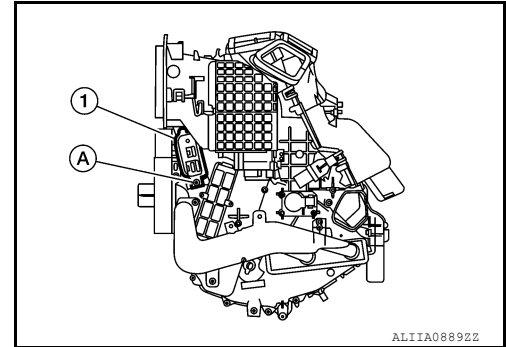
### VARIABLE BLOWER CONTROL

#### Removal and Installation

INFOID:000000011276726

#### REMOVAL

1. Remove center console side finisher (LH). Refer to [IP-19. "Exploded View"](#).
2. Disconnect the harness connector from the variable blower control.
3. Remove screw (A) and variable blower control (1).



#### INSTALLATION

Installation is in the reverse order of removal.